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A CLINICAL STUDY OF ONE HUNDRED AND FIFTY CASES OF HYPERPHORIA.*

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When this paper was first thought of, I went over all my records with a view of finding in what percentage of cases hyperphoria had been noted; also what lessons were to be derived from the study of these cases. After much examination I decided to limit myself to my last 700 cases, throughout which there has been almost absolute uniformity of study. The statistics resulting from any study of these 700 records will therefore be of much greater interest and more faithful to the facts than had I included my preceding 1700 records, many of which are more or less incomplete as to the muscular status.

In every case painstaking correction of all refractive errors was made, the tests for hyperphoria preceding and following the refraction. Out of these 700 records 525 were refraction cases, in every one of which the muscular status was carefully estimated with the Maddox rod—and sometimes with supplementary methods—before giving the prescription. It is my conviction that without full knowledge of the muscular status, it is absolutely impossible to come to an intelligent conclusion as to what lenses ought to be ordered in any given case of ametropia.

Hyperphoria is spurious or intrinsic. The former is almost invariably an outward expression of perverted accommodation. In such cases where the ciliary muscle has been cured of its bad habits by a mydriatic or the wearing of proper correcting lenses, the vertical deviation usually disappears. Particularly is this true when oblique astigmatism has been the fault. Moreover, lithemia, gout, neurasthenia and, I have sometimes thought, early tabes, will at times produce a transient hyperphoria which might easily lead the examiner astray if the general economy and the patient's life habits are not kept constantly in view.

Intrinsic hyperphoria, on the other hand, is uninfluenced by a mydriatic. Indeed in some cases I have seen a small but gradual daily increase under prolonged cycloplegia. This is no less true after wearing a proper correction, for, as far as my experience goes, intrinsic hyperphorias are little if any influenced by curing the ciliary muscle of its vicious habits. True, many such patients will be entirely relieved of all their symptoms by assuming the proper correcting glasses, in which case treatment directed to any coincident muscular imbalance is meddlesome ophthalmology. But, on the other hand, I have known people to wear perfect corrections for some years, going from one to another ophthalmologist, still seeking relief, only to find it when a vertical prism had been combined with their curvature correction.

Whether a patient shall or shall not receive a prism correction should be entirely a matter of symptoms. Some people carry a vertical imbalance of 1 to 2 degrees all through a life of high tension and large usefulness without the slightest discomfort, while in others .5 to .75 degree is sufficient to make life an almost intolerable burden. Into this phase of the question enter such factors as heredity, temperament, life habits, worry, and all the rest of that intricate aggregation of facts that go to make up the personality of our patients.

But there seems a degree of hyperphoria below which it is trivial to go, and this I would fix at .5 degree—tentatively at least. Nothing less than this was recognized in the 700 records studied.

In the early part of my muscle work the diplopia test was unfailingly applied, either by means of a single rotary prism or the Stevens phorometer. But I soon found myself relying on the Maddox rod, and for the very good reason—shown by my colleague, Dr. Hansell—that any test that compared the behavior of a foveal image of one eye with a perifoveal image of the other eye could not but often lead the surgeon into false conclusions; this is because of the stimulation of non-corresponding points in the two retinas. The test that would so deform one image as to temporarily set aside the fusion impulse, and at the same time allow a certain portion of this deformed image to fall on the fovea of the eye seeing that image, certainly seems the best test so far at our command—hence the great value of the Maddox rod. On this test I have rested the diagnosis in these 150 cases.

There is a diplopia test that is of signal value in the detection of hyperphoria, namely, the use of a colored glass to detect, if possible, spontaneous diplopia, which if found is of great significance. But this is natural diplopia conforming to the proposition that a test must concern both foveæ centrales; hence this diplopia test is free from the objections made against those tests based on artificially produced diplopia.

Latent Hyperphoria.—An interesting feature in connection with this study is that out of the 150 times in which hyperphoria was found, it was partially or wholly latent in 49—or practically 33 per cent.—of the times it occurred. In glancing over the methods of various workers for the unmasking of latent hyperphoria I find that all of them are some manner of modification of the "blinder" test. It is now a fairly well accepted fact that in a certain number of cases, if a blinder is worn before one eye for fifteen to thirty minutes, a hyperphoria varying from .5 to 1 degree will often show itself for a few minutes after uncovering the eye.

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Some surgeons still resort to this method for the detection of supposed latent hyperphoria. Posey has modified this method by first working out the correction of the right eye and then with the correction still before that eye placing in front of it a blank disc. The left eye is now examined, and when the proper correction has been worked out, the Maddox rod is placed before the left eye. He now lifts the blank disc from in front of the right eye which has thus been under cover for from five to ten minutes. If latent hyperphoria exists, it is likely to show itself wholly or in part by this unveiling test.

My own maneuver differs but slightly from Posey's method. After the right eye has been corrected, I place in front of the correction the Maddox rod. When the left eye has been corrected, I immediately direct the patient's attention to the streak of light and after carrying the streak several times from the vertical to the horizontal position, have them tell me its relation to the point of light. I believe that by having the patients fix their attention on the streak in the vertical position and then suddenly swinging it into the horizontal position, the higher cerebral centers are taken by surprise and the detection of latent hyperphoria made relatively easy. The rod should be reversed a dozen times or more, each time questioning the patient as to the relative positions of the streak and light. The purpose is twofold: 1, by continually throwing the higher centers off their guard to unveil more of the hyperphoria; 2, frequent repetitions of the maneuver to educate the patient to assist in the determination by relaxing the impulse to binocular fixation as we relax the accommodation.

Any method that takes the higher centers off their guard will reveal the deviation. Binocular single vision is one of the brain's most complicated automatic functions. It concerns a cerebral—or governing—and a peripheral—or executing—apparatus in the most intimate association. The unconscious preservation of binocular single vision is so deeply rooted a thing in the human automatism that something, some trick, is needed that will temporarily set aside the dominating influence of the cortical centers over the eyeballs and their muscles. Only in this way can latent deviation tendencies in the peripheral portion—the eyeballs—of the binocular vision apparatus be revealed in many cases —and especially in young subjects.

Age seems to play no small part in this matter, for hyperphoria is much more commonly manifest after 40 years of age than before that time. It is difficult to put down the thought that along with the loss of ciliary elasticity there goes a similar loss of compensating elasticity in the extraocular musculature, that favors the easier detection of any previously existing lateral or vertical deviations. Certain it is that in presbyopes, hyperphoria is much more easily shown and vertical prisms are much more comfortably worn than by the generality of young people. In only 7 cases out of these 150 was hyperphoria found before the 20th year.

Between the 20th and 30th years hyperphoria occurred in 34 cases; 30th and 40th years, 50 cases; 40th and 50th years 29 cases; 50th and 60th years, 27 cases; after the 60th year 3 cases. These figures refer to true hyperphorias only, in whom binocular vision was invariably present. No instance of actual vertical squint was allowed to creep in.

As to the refraction conditions with which hyperphoria is associated, it was encountered 117 times out of 150 in hypermetropia and hypermetropic astigmatism; 17 times in myopia and its allied states; 8 times in mixed astigmatism; 6 times in antimetropia—commonly termed anisometropia—and twice in emmetropia. Anisometropia has not in my experience furnished the large percentage of hyperphorias noted by some other workers in this field. Perhaps this is because I found actual vertical squint not infrequent among this class—in other words the findings do not differ in kind but in degree.

In its relation to lateral muscular deviations, the hyperphoria in these 150 cases was associated with esophoria 86 times, with exophoria 55 times, and with lateral balance 9 times. This too is easily explainable on the basis of the predominance of hypermetropia as above shown.

In 73 cases the upward deviation occurred in the right eye and in 77 in the left, so that there is practically no difference in the frequency with which either eye deviates.

Hyperphoria.	No. of times found.	Corrected with prism.	No prism correc.
½ degree	40	12	28
¾ degree	31	20	11
1 degree	43	35	8
1¼ degrees	3	3	—
1½ degrees	10	8	2
2 degrees	10	8	2
3 degrees	4	2	2
4 degrees	5	5	—
5 degrees	4	4	—
	150	96	54

The results of prism correction were the following: Number of cases, 96; good, 78; improved, 6; no change, 6; unknown, 6. In the 54 cases in which no prism correction was ordered the results were fairly good. Prism corrections were not ordered in these 54 cases, 1, because, notwithstanding the existence of unmistakable hyperphoria, the patient had been previously wearing either no correction or a wrong one; 2, because convergence-training or repression dissipated the symptoms; or 3, because the patient took such high power plus or minus lenses as to make inadvisable the incorporation of any vertical prism. Such patients learn readily but unconsciously to correct their hyperphorias, generally by tilting one lens a little higher than the other. In prescribing these 96 vertical prisms, full corrections were ordered in 20 cases, three-quarter corrections in 60 cases, and half of the deviation was corrected in 16 cases. Full corrections were made only in glasses for near work, because hyperphoria is generally greater for the occupation distance than for infinity, and experience has shown that the prism that fully corrects the deviation for infinity can often be comfortably worn in all near work. This observation is almost invariably true for hyperphoria of .75 degree or more.

My figures show further that in 40 cases which I have been enabled to follow, the hyperphoria has increased from 33 to 50 per cent. after six-months wear of a vertical prism. I have no explanation to offer for this increase, or rather unmasking of a latent hyperphoria. I can but point to what seems to me a perfect parallel; i. e., the uncovering of a latent hypermetropia by age. When some member of this Section has discovered and made practical, the use of a myoplegic that will paralyze the extraocular muscles as a mydriatic does the intraocular muscles, we shall have made a giant stride toward solving the physiology of the extraocular muscles in particular and the act of binocular vision in

general. True, it would probably upset many of our pet notions of to-day and require us to build up new standards, but it would certainly give us some precious information as to the anatomic and functional positions of rest of the eyes.

The principal symptoms of vertical deviation tendencies are one-sided supraorbital, temporal and occipital neuralgias, photophobia, drowsiness, and tremendously exaggerated general fatigue after prolonged near work. I have been especially impressed with this last symptom in many cases. Too, hyperphoria stands in close relation, etiologically, to migraine; quite as close, I am sure, as oblique astigmatism.

In the effort to make hyperphorics comfortable without vertical prisms or tenotomies, too much attention can not be given to convergence deficiency or excess, the former to be met with convergence training after the method popularized by Gould, the latter with convergence-repression treatment by crowding on excessively strong convex lenses for ten-minute periods of work at the near point three or four times a day. These measures often suffice to wipe out all the symptoms. Moreover, as pointed out by Oliver,[1] sleep and exercise are splendid adjuncts in relieving the conditions of asthenopic hyperphories. A few additional hours of sleep daily often rid a patient of much eyestrain that lenses, prisms, or tenotomies never fully reach. The benefit of exercise in the open is too patent for comment.

Tenotomy.—Out of the 150 cases studied, tenotomy was resorted to in only 5, all of which presented hyperphoria of 3 degrees or more. In no one of these 5 cases was there any marked difference in the refraction of the two eyes. Two were epileptics. One of them—a young man with left hyperphoria of 4.5 degrees—has been entirely free of epileptic manifestations for six months, whereas he had been having seizures daily. For three years he had worn a perfect correction of his low-grade ametropia without any effect on his minor epilepsy. In his case, I tenotomized the left superior and the right inferior rectus at the same sitting, securing 1 degree of overcorrection, which righted itself in four or five days. He has now absolute muscle balance.

The other, a 31-year-old married woman, has had but three epileptic seizures in four months, as against bi-weekly and sometimes tri-weekly attacks prior to operation. Her hyperphoria was 4 degrees.

The three remaining cases all presented distressing head symptoms not relieved by vertical prisms, but markedly benefited by free tenotomy of the superior rectus of the eye with the higher visual axis.

From the foregoing, the rational treatment of hyperphoria would seem to resolve itself into: *a*, wearing a proper correction four to six months; *b*, exclusion of causative diathesis or central nervous disease; *c*, convergence-training, if convergence be weak; *d*, convergence-repression, if convergence be excessive; *e*, if the hyperphoria is still annoying, prism correction of one-half to two-thirds of the vertical deviation for distance, and two-thirds to all of the deviation for near work; *f*, if the hyperphoria continues to produce urgent symptoms in spite of the preceding measures, tenotomy of the overacting elevators of one eye or the depressors of the other eye finally becomes justifiable.

Much more could be said in comment on the facts growing out of this study, but I shall have to content myself with recording the following convictions:

1. Hyperphoria occurs in about 1 out of 6 patients who seek counsel of the ophthalmologist.

2. It is present to the extent of .5 degree or more in 1 out of 3 refraction cases.

3. It becomes worthy of special attention in about 1 out of 5 refraction cases.

4. It is more likely to be latent before the 30th year—33 per cent. of all cases—and manifest after that time.

5. It occurs most frequently to the extent of about 1 degree.

6. The most frequent symptoms are supraorbital, temporal, and occipital neuralgias, photophobia, drowsiness, and abnormal physical tire after prolonged near work.

7. A full quota of sleep, daily open-air exercise, and a well-regulated life are all highly important factors in trying to make hyperphorics comfortable.

8. Hyperphoria is found a little oftener associated with esophoria—57 per cent.—than with exophoria—37 per cent. This is probably because compound hyperopic astigmatism with its associated convergence-excess outnumbers all other anomalies of refraction.

9. Convergence-training—if convergence be insufficient—and convergence-repression—if convergence be excessive—frequently relieve hyperphoric symptoms entirely.

10. *The vertical prism has a field of pronounced usefulness.*

11. Prism corections will be of service in about 50 per cent. of all cases. One-half to two-thirds of the hyperphoria may be corrected for infinity and two-thirds to the full amount for work at the occupation distance.

12. When all these means have been exhausted, section of some one of the vertical muscles may be thought of. About 1 out of 20 hyperphorics whose deviation is 2 degrees or more will profit more by tenotomy than by any other treatment. Two or three degrees is likely to be the amount permanently obtained by vertical tenotomy.

13. The only fruit that can be borne of the attempt at hospital or dispensary treatment of hyperphoria—or for that matter any but the simplest muscular anomalies—is vanity and vexation of spirit.

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1. Norris and Oliver: System of Diseases of the Eye.

DISCUSSION.

DR. H. F. HANSELL, Philadelphia—Dr. Reber's paper is a conclusive one based on experience and is a most conservative expression of opinion founded upon a careful, thorough, clinical investigation. The subject is a very large one and open to discussion in various ways, but the part that seems to me to have the greatest weight is the diagnosis of hyperphoria. The paper is valuable, too, in that the author has carefully excluded hypertropia. Many writings on this subject are complicated and rendered less valuable because there has not been a close line drawn between hyperphoria and hypertropia. The conditions are different; in the one case we are exercising our brain, muscular force and all the nerve energy we can to cancel the defect, and in the other case we have yielded to this defect, and the main symptom we get is diplopia, readily corrected by simply covering one eye, whereas the mental symptoms of hyperphoria, which make it such an important part of our practice, can only be relieved by a careful study and a great deal of practical clinical experience.

DR. MARK D. STEVENSON, Akron, Ohio—Like most ophthalmologists I used to test for hyperphoria with the Maddox rod and prisms immediately after the patient had left the dark room, but now I not only make these tests before finding the refraction of the eye, but also with the proper lenses before the eyes and a Maddox rod before one; then by alternately covering and uncovering the eye which does not have the Maddox rod before it I can discover many cases of hyperphoria. Many cases of latent hyperphoria can be discovered by simply rotating the

Maddox rod from the vertical to the horizontal positions as suggested by Dr. Reber.

DR. G. C. SAVAGE, Nashville—Any muscle test that places the false images within the area of binocular fixation is full of error. The false image should be thrown entirely out of the area of binocular fixation and then we can at once get at the true condition. Monocular tests alone are trustworthy. Let me say that the hyperphoria which is corrected by convex lenses is a hyperphoria that is not due to any trouble in the superior or inferior recti, but is caused by error of attachment of the internal recti; the one muscle is simply attached too high, and the other too low. The esophoria you find in such cases is not an intrinsic esophoria, but a pseudo-esophoria. You correct the hypermetropia and at the same time cure the pseudo-esophoria and the hyperphoria disappears. Again the hyperphoria that is relieved by cylindrical correction is not due to any trouble in the superior or inferior recti. In such cases of astigmatism the meridians of greater curvatures are leaning in the same direction, but not parallel, and the leaning is toward the nose and greater in the hyperphoric eye. Correct this astigmatism and the hyperphoria vanishes like mist betore the morning sun.

There was a very interesting case here yesterday in a man with less than 1 degree of right hyperphoria, whose eyes are subjected to 2 degrees of vertical prismatic effect. He gets more relief from that than from weaker prisms. This case was investigated first by an eminent ophthalmologist, who found no hyperphoria at all and who was later induced to operate on the internal rectus of the left eye for esophoria. (If he had divided the lower fibers of the internal rectus of the right eye I believe he would have corrected the trouble.) On examining this case yesterday I found he had a well-marked plus cyclophoria; and I found this to explain the relief he gets from those prisms. I tried first a 1-degree prism before each eye with no comfort; and then a 1½-degree prism, base down, before right eye and a ½-degree base up before the left; that combination gives him the most relief. He thus allows the eye to turn up and is getting relief, not because of any hyperphoria primarily, but because the prism thus placed enables the superior rectus of the right eye to torsion the eye in and help the weak superior oblique, while the prism before left eye causes it to slightly torsion out, but leaving the vertical meridians parallel. I will close with this remark, that I never operate on a case of hyperphoria without knowing where the cause resides and the conditions that complicate it, and never on a case of less than 2 degrees. If a man operates on the superior muscle for hyperphoria and divides more fibers on the outer side than the inner he will lead to more suffering than if he had done nothing. As a rule it is better to divide all the internal fibers of a superior muscle than even the central fibers, and if the outer fibers are divided the patient will be worse in the end than if he had never been touched.

DR. C. F. CLARK, Columbus—I can not help feeling that most of us are mystified by this muscle question. I have enjoyed Dr. Reber's paper very much and feel that it is deserving of credit, but that we need some foundation principles to base our study upon.

DR. JOHN T. CARPENTER, Philadelphia—I think Dr. Reber deserves credit for bringing forward, at this time, a paper dealing with the treatment of defects of the ocular muscles. I have been impressed by the manner in which any reference to this subject is met by many ophthalmologists. There is complete contempt for the question of the surgical treatment of muscular abnormalities. As an instance of extreme opposition I was lately told by a man well known in our special line, when speaking of a patient whom I had cured by tenotomy of the superior rectus, that I ought to have been prosecuted for doing the tenotomy. Dr. Reber has handled this subject in a calm, judicious manner, and we should all try to help clear up this "dark region" in ophthalmic science.

DR. WENDELL REBER, Philadelphia—I am gratified at this expression of opinion. Dr. Stevenson's modification of the cover test is one I have employed for a long time, and I am not sure that he and I have not talked about it. I think the Maddox rod test the most trustworthy yet offered. We know very little about the physiology of the ocular muscles. When we reflect that there are six pairs of muscles, that no one is concerned alone in any movement of the eyes; and that according to Volkmann there are something near 200 possible combinations of these movements, we will perhaps realize how empirical our present knowledge is.

As to Dr. Thompson's question whether I cut all the muscle, I would say that I do not do partial tenotomies, but complete ones. I shall do partial ones only when clinical evidence of a convincing nature has been produced.

DR. SAVAGE—Do I understand that you do a complete tenotomy on the superior rectus for 2 degrees of hyperphoria

DR. REBER—Yes.

DR. WILLIAM THOMSON—Have you had many occasions requiring a restricting stitch?

DR. REBER—I have had overcorrection in one case and I preferred to trust the re-establishment of normal conditions to the patient's brain, believing that the brain can take better care of such temporary apparent overcorrections than the surgeon can.

OCULAR COMPLICATIONS OF INJURIES TO THE HEAD.*

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The clinical fact that blindness may follow blows on the head is by no means new, but until Berlin, in 1879, cleared up the pathology of these cases, their etiology was clouded in vague conjecture. Beer attributed the amaurosis following head injuries to the reflex influence of the supraorbital nerve. The result of anatomic studies, however, by Berlin, Leber, and Von Hölder, proved that direct damage to the optic nerve or its sheath in the foramen opticum by fracture of the orbital wall frequently occurred. Von Hölder, in his cases studied postmortem, found fracture of the orbital vault in 90 per cent., while the optic canal was implicated in about 60 per cent. There were hemorrhages into the nerve sheath in about 48 per cent. of the 88 cases. The line of fracture in some instances passed through both foramina. In Treves' "System of Surgery," illustrations show the line of fracture in two cases passing through both optic foramina, so that the blindness may be bilateral; indeed, it may even be on the opposite side to the injury by the contre coup.

Following Berlin's communication at the German Congress in 1879, there appeared reports of optic neuritis, of atrophy, and of hemianopsia resulting from blows or falls on the head. Most of the reported cases were of monocular blindness, caused by such blows or falls, the subsequent optic atrophy showing that the nerve had been severed or compressed, producing descending degeneration, with the ophthalmoscopic signs of simple atrophy, in about three weeks. Ocular complications have been recognized by surgical authors as of important corroborative value in fracture of the base of the skull; and conjunctival ecchymosis appearing some hours or days after the injury is one of the classic signs of these fractures. Emphysema of the orbit or lids proved the existence of a fracture of the orbital walls communicating with the air cells in the neighborhood of the orbit. In 1882, Von Bergmann called attention to the fact that rapidly increasing hemorrhage into the cranial cavity produced the same disturbance in intracranial pressure that was found in brain tumors; and thus a "choked disc" might accompany cerebral hemorrhage, as well as tumor of the brain. Optic neu-

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ritis might, however, be due to direct damage to the foramen by fracture or laceration, and not to increase of the intracranial pressure. The grave and even fatal nature of the injury may completely overshadow the ocular symptoms, but interesting instances are recorded in which, with almost no general disturbance, complete and permanent blindness ensued. Knies relates the history of a railroad official who, while riding in a train, "struck the orbital rim lightly against some obstruction. The patient was not unconscious for a moment, but from that time on he was blind on the side of the injury."

Head injuries may be perforating or non-perforating in character. The eye or its appendages may be directly injured by a bullet, a sharp implement, or a fall on a pointed stick; but in these instances the injury is an obvious one, and the case presents interest only in the light of its clinical symptoms. The eye-ball may be ruptured and destroyed or the optic nerve may be severed or torn, and the extraocular muscles may be paralyzed by damage done to their nerve supply or to the muscles themselves. Of these cases I shall not treat further. So, also, in non-perforating injury, there may be ocular complications, such as intraocular hemorrhage, dislocation of the lens—at times producing secondary glaucoma—traumatic mydriasis, or even rupture of the iris. The deeper ocular tunics may be damaged, or there may be enophthalmos or exophthalmos with pulsation. These various conditions, while presenting interesting features, can not be included in a short paper, but must be studied separately from their clinical point of view. I shall confine myself to those obscure ocular lesions following head injuries, in which the optic nerve or some of the other cranial nerves are affected.

Blows or falls on the head produce ocular symptoms by extension of fracture into the orbit; by contre coup; by hemorrhage into the nerves or their sheaths; by meningitis at the base of the brain; by localized injury to the optic chiasm or to the neighborhood of the visual centers, producing hemianopsia. This subject is interesting from its medicolegal standpoint, and in the first case reported in this paper heavy damages were secured by establishing the relation between the injury to the head and neuritis and partial atrophy of the optic nerve which resulted. Gowers treats the subject of injuries to the head under four divisions:

1. Impairment or loss of sight without ophthalmoscopic signs. In some of these cases he thinks the mischief is direct concussion of the retina.

2. Optic neuritis following at an interval of from a few days to several weeks. In these cases he thinks that the neuritis is due to meningitis; or less commonly to traumatic inflammatory softening of the brain.

3. Simple atrophy. In such cases sight often fails, while the atrophy develops ophthalmoscopic signs later.

4. Gradual failure of sight, with slight and stationary papillitis, probably due to chronic interstitial neuritis in the nerve trunk. The first case which I shall report is best included in the fourth class, as the nature of the lesion, while necessarily somewhat uncertain, is best explained as a partial degeneration of the optic nerve following an interstitial neuritis of the nerve trunk.

CASE 1.—Philip L., aged 36, consulted me Jan. 22, 1896, because of rapidly failing vision. He gave the following history: Five weeks before seeking advice, while driving a team of horses, the pole of the carriage was struck by a rapidly moving trolley car. He was thrown to the ground, striking the right side of his head. For a few minutes he was dazed, but considered himself little hurt and was able to walk home with one of the horses, which survived the wreck. He worked as usual for four days, but was then compelled to give up because of headache, vomiting and pain in his back. Ten days after the accident he first noticed dimness of vision. There seemed to be a "mist in front of objects," and he was unable to read his instructions or to distinguish the numbers over the front doors. Two weeks after the accident, when his vision was so much reduced that he "could hardly get around," his eyes were examined by a very competent ophthalmic surgeon, who found very poor vision, dilated pupils, and negative ophthalmoscopic appearances. He thinks that his vision began to improve about four weeks after the injury, and now—five weeks later—he can read large letters by looking at them sidewise.

On examination I noted: Pupils dilated and fixed; amaurotic expression; moves his eyes rapidly to and fro, which, he affirms, enables him to distinguish objects more clearly. Right vision is 4/60; left vision, 1/60. He is unable to read any type. Field shows absolute central scotoma in each eye, about 25° × 20° in extent. Peripheral fields are normal. The ophthalmoscopic examination showed almost emmetropic refractive condition, low-grade optic neuritis with one or two small fresh hemorrhages on and near the nerve-head. The retinal veins are swollen and tortuous; the nerve-head is slightly swollen, of dirty, reddish-gray color, especially dense on nasal edge. The temporal edge is clearer, and the outer fourth of disc is pallid looking. Both direct and indirect methods show complete veiling of the upper, lower, and inner nerve edges, and the swollen portion is seen to be composed of striated nerve fibers, with small red points like minute hemorrhages mingled with gray inflammatory exudate.

There was no evidence of syphilis. He was married and had healthy children. He had never suffered from any illness whatever; his habits were most temperate, and he was apparently in vigorous health. Urine was 1018; negative tests for albumin and sugar; no sediment. The diagnosis of descending neuritis from localized traumatic meningitis at the base of brain, involving the optic nerves, was made. The treatment was heroic in view of the serious nature of the lesion. Mercury was pushed by inunction and iodid of mercury in pill form until marked symptoms of ptyalism developed. In about three weeks he was placed on ascending doses of potassium iodid until his daily dose reached 120 grs.; his vision improved but little, and the nerves passed slowly into an atrophic state. Three months afterward, his vision and scotoma remaining about the same, he was given strychnin in increasing doses and pilocarpin 1/8 gr. hypodermically, three times a week.

Slight improvement resulted, but the final vision gained was 4/60 for each eye, in December, 1896. When last seen, January, 1900, his vision was 10/200, and the ophthalmoscope showed apparently complete atrophy of the discs. The peripheral field remains excellent; and owing to this fact he is able to go around without difficulty. There is still an absolute central scotoma surrounding the fixation point.

We have here a comparatively slight injury to the head, after which the patient, though dazed, was not unconscious. He was able to walk to his home and reported for work the next day, being inconvenienced only by a general bruising of his body. For a week after the injury he suffered severely from headache and pains in the back. On about the tenth day he first complained of visual symptoms. Both pupils were widely dilated and fixed, and the optic nerves, examined by a confrère, presented nothing abnormal. In from three to four weeks after the injury, a low-grade optic neuritis manifested itself. Central vision was greatly reduced and an absolute central scotoma was then mapped out, which has remained permanent. The eyes passed into a condition of partial atrophy and his final central vision nearly five years after the accident is 10/200 with absolute central scotoma and a normal peripheral field.

In the trial which followed, the medical testimony for the defense included an attempt to attribute the

neuritis to some general systemic cause, but as there was an entire absence of any constitutional disease, the patient enjoying vigorous health both before and since the accident, and in the light of previously reported cases, similar injury was shown to have produced like results, damages were justly given in favor of my patient, for partial loss of eyesight. Toxic neuritis was excluded after most careful investigation.

We are concerned here with the difficulty of explaining the exact nature of the damage evidently inflicted on the optic nerve at some distance behind the eye-ball. There was probably an axial neuritis, producing almost complete central blindness, with intact peripheral field. This is not the usual picture of fracture of the orbit passing through the optic foramen. The injury was bilateral and the visual fields singularly affected in the central portion only.

Our present anatomic knowledge of the course of the macular fibers behind the eye-ball places them in a position apparently inaccessible to injury, without affecting the fibers supplying the periphery of the retina; but after a careful study of the clinical facts, I am inclined to believe the bilateral injury affected the axial fibers in each optic nerve, as a result of traumatic shock. Gowers says, in his work on "Medical Ophthalmoscopy": "Blows on the head commonly produce atrophy by direct injury to the nerve, but it is probable that they occasionally cause, by the effect of the shock, a gradual degeneration." He lays stress on the early loss of vision in these cases, with later ophthalmoscopic findings. He states that in some cases an injury to the head may be followed by a gradual failure of sight, with slight, stationary papillitis, probably a chronic interstitial neuritis in the nerve trunk.

There were no marked symptoms in my patient's case of traumatic meningitis, although he suffered from severe headache, some vomiting, and backache. In the discussion of Callan's article, "Transactions of American Ophthalmological Society," 1891, Dr. Myles Standish reported two cases of great medicolegal interest. Two individuals claimed damages for blindness said to have been caused by a blow on the head. Pupils reacted to light, and there was no ophthalmoscopic change, so that he reported malingering; but to his chagrin, both cases showed complete monocular atrophy and absolute blindness when examined three months later. Dr. Lippincott, at the recent meeting of the American Ophthalmological Society, related a similar experience.

CASE 2.—John H. P., aged 10, was seen in consultation with Dr. F. A. Packard, April 9, 1894. The following history was obtained: Four days ago, without warning, he awoke with severe frontal pain and fever. Temperature was 101; pulse, 100. There was slight stupor, but the patient could be easily aroused. Light caused irritation and complaint, and yesterday he first noticed diplopia. Dr. Packard reported that there had been no marked strabismus. Today there is intense frontal headache and some occipital pain; slight retraction of the head; and on sitting up, he complains of pain in the back. The left ear shows a bluish discoloration from a blow on the left side of the head, received five days before by being pushed against a lamp-post by a playmate. I noted the following ocular conditions: Marked convergent strabismus, homonymous diplopia, except when candle was held directly in front. Each eye can be moved outward, so that the cornea touches the outer canthus; but it can not be held there, as the eye, after a series of jerks, is carried inward. There is evidently paresis of the externi, or spasm of the interni. Left outward rotation seems to be more defective and accomplished with greater difficulty than on the right side. Pupils are "large medium," but responsive, slightly less so on the left side. Some pain is felt in the left eye when it is pushed back into the orbit.

The ophthalmoscope shows in the left eye marked optic neuritis. Nerve edges swollen and obscured by retinal striation; veins swollen and tortuous; arteries not reduced in size, but the vessels are partly hidden near the disc by retinal edema. The summit of swollen disc is seen with + 5 D.; macular pigment, with + 2½ D. Right eye shows media clear; hypermetropia, 2 D.; nerve head not swollen; no retinal haze. The fundus presents usual changes of hypermetropia. On the following day, convergent strabismus was more marked. He closed one eye, usually the right, to get rid of the annoying diplopia. Temperature was 99; patient bright and cheerful. Vision roughly tested with small type, seems to be unaffected. The treatment instituted was calomel, gr. 1/6 every hour. Mercurial inunctions night and morning.

April 13: Now fixes constantly with the right eye, closing the left. Left-sided ptosis appeared to-day. Ophthalmoscope shows no alterations in fundus since last examined.

April 14: Mercurial inunctions stopped, patient being ptyalized. Ophthalmoscope shows less marked venous stasis, but no nerve edges are yet made out. Atropin is ordered for each eye. Four days later there was continued improvement in both the general and local symptoms. Convergent strabismus was less marked. Summit of nerve +5 D., and its edges hidden to both direct and indirect methods. One week later, and almost three weeks after the accident, the ptosis had almost disappeared; there was no strabismus. Diplopia was noticed only in the extreme outer field.

April 22: Ophthalmoscope now shows temporal edge beginning to appear. Disc, dull-red, as seen through a fog, and slightly swollen. One week later there were no signs of ocular paralysis and the nerve-head had almost regained its normal condition. By the middle of May, atropin was stopped, glasses correcting his refractive error having previously been ordered. The patient has had no further symptoms of the ocular trouble. His vision and eye grounds are normal.

The interesting points in the case are the irritative symptoms, namely, spasm of convergence and photophobia, due to traumatic meningitis of the anterior portion of the skull, followed by paresis of the left external rectus and levator palpebræ superioris, with left optic neuritis. The association of paralysis of a branch of the third, with paralysis of the sixth nerves, and optic neuritis on the same side, make it possible to locate the intracranial lesion at or near the sphenoidal fissure.

Cases of traumatic paralysis of the ocular muscles are by no means rare, the external rectus suffering most frequently; but the association of no less than three of the cranial nerves, as occurred in this case, seemed, in my opinion, to justify this report.

DISCUSSION.

DR. H. F. HANSELL, Philadelphia—I had the opportunity of seeing the first case reported by Dr. Carpenter and the pain of having to testify in court as to the nature of the injury. I thought at the time that it was a fracture of the sphenoid bone, producing an injury to the meninges directly over the optic nerve, and that this meningitis produced later a central degeneration of the optic nerve. I was led to that conclusion by an experience I had in a case of purulent disease of the accessory sinuses of the eye in which the scotoma was just as pronounced and incurable as it was in this case. The scotomas were exactly alike in both eyes, and that seems to exclude direct injury to the optic foramen, and to the nerves passing through it. In that case the sphenoidal sinuses were filled with pus. The patient lost his sight over night, probably by the acute and rapid extension of inflammation to the membranes lying on the body of the sphenoid bone.

In connection with this case I would like to report a case studied very carefully with Dr. Spiller. R. T., aged 30, railroad employee, brought to the Polyclinic Hospital on July 7, 1898, while intoxicated received a punctured transverse wound in the lower lid of the right eye from the thrust of an umbrella ferrule. When he was brought to the hospital he was unconscious,

his muscles were relaxed, the skin was blanched, the extremities were cold, and the heart's action was weak—results of the injury and partly, perhaps, of alcohol. A few minutes after his reception he could be roused sufficiently to answer questions. He was put to bed and to quiet his extreme restlessness and complaints of pain, morphia and bromids were given. The ragged linear wound in the lids was just above the margin of the floor of the right orbit. No fracture of the bony floor or walls could be detected. The left side of the face was paralyzed. Ptosis was complete on the right side, the right eye was slightly prominent and immovable by any voluntary effort. He had absolute ophthalmoplegia of all the external and internal muscles of the right side. The pupil was moderately dilated and irresponsive to the stimulus of light or convergence. Accommodation was abolished. There was indistinctness of outline of the margin of the disc; otherwise the fundus had undergone no change. Subsequent examinations made while the patient was in the hospital showed no improvement in the ocular conditions excepting a subsidence of the edema. About 6 months after the accident, the muscles of the exterior and interior of the eye had regained to a great extent their normal power. Some restriction of movement in all directions, a partially dilated and sluggish iris, and inability to read fine print were still evident. Diplopia, the eye symptom that was prominent from the first, continued in all parts of the binocular field, although the separation of the false and true images was less marked. Shortly after the accident the left side of the face and the left arm were noticed to be paralyzed and the left leg paretic. Paroxysms of severe pain in the distribution of the ophthalmic branch of the right 5th nerve occurred several times daily during the first two weeks, and perhaps a little longer. A consideration of the history and symptoms of this case in which we have paralysis of the 3d, 4th, the ophthalmic division of the 5th and 6th nerve, with a transitory perversion of the function of the 2d, leads inevitably to the conclusion that the umbrella tip penetrated the right orbit and injured these nerves at the point where they lie close together, namely, the sphenoidal fissure. The escape of the optic nerve from injury shows that its site, above and to the inner side of the sphenoidal opening, was not invaded. We can hardly imagine a lesion that would produce complete paralysis of all the orbital nerves except the optic, unless it were situated at the sphenoidal fissure, where these nerves are close together. The exophthalmos, noticed at first, was probably produced by the complete paralysis of all the external ocular muscles and the loss thereby of the muscular tonicity. After the muscular power was in a measure regained the exophthalmos entirely disappeared.

DR. W. L. DAYTON, Lincoln Neb.—In connection with Dr. Carpenter's paper, I wish to mention two cases that came under my observation in the latter part of 1898. One was a case of a railroad engineer who, in getting on his cab with the long nozzle oil-can in his hand, slipped and fell upon the curved extremity of the nozzle so that it penetrated the orbit and evidently injured the optic nerve directly. At least I thought this was the case on account of the condition of the circulation that existed for months afterward. I saw him within two hours after the accident and there were negative ophthalmoscopic signs. He was perfectly blind, but there was no hemorrhage apparent from the cut, which I stitched together, and it healed kindly. Although we kept him under treatment for prudential reasons for some time, he had, when discharged, a divergent strabismus and the ophthalmoscope showed a progressive atrophy. The vascular condition was remarkable, the veins being full, arteries large and there was not a great amount of tortuosity.

Five or six weeks after that a little boy 7 years old, while playing Indian, had the pointed extremity of a wooden sword jammed into his eye in the same position as in the former case, namely, the inferior sulcus, without injuring the eyeball. There was almost immediate total blindness without ophthalmoscopic signs, and now there is a divergent squint.

DR. H. W. SEABROOK, New York City—Dr. Dayton's remark about the hopelessness of the prognosis in these cases leads me to report a case of injury to the eyeball occurring in January last. Two men were fencing in the theater when one received an injury by the other's foil penetrating the orbit; the tissues at the inner side of the eyeball were torn through, including the internal rectus; he had complete paralysis of all the muscles supplied by the 3d nerve, and though there was no trouble with the retinal circulation as yet, there was total blindness. On the fifth day the man began to see light and at the end of ten days had vision of 20/200, with the upper part of the field cut off. There was some divergence left when I saw him three or four weeks after the injury. It would seem as if the unbroken end of the foil had carried the eyeball upward and outward, pulling upon the optic nerve at the foramen and bruising or lacerating its lower and inner fibers only.

THE SILVER-INJECTION TREATMENT OF PULMONARY CONSUMPTION.*

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That the nervous system is generally, and the pneumogastric nerves are especially, implicated in pulmonary consumption, and that any therapeutic agent which affects this disease favorably and permanently either appeals directly or indirectly to the pulmonary organs through the nervous system, have been regarded by me as cardinal truths for more than a dozen years. This is clearly confirmed on its pathologic side. For, it may be said, that any influence or agent that has the power of undermining the integrity of the nervous system also has the power of generating pulmonary consumption, or some other form of pulmonary disease. Herein lies the reason why the insane, the idiotic, the epileptic, the hysteric, the asthmatic, the neurotic; why those who are subject to great grief, worry, mental overwork, disappointment, etc., and why those whose nervous systems suffer from the chronic intoxication of alcohol, syphilis, lead, mercury, etc., are much more prone to die of phthisis than others differently situated. On the other hand, when we review the therapeutic history of phthisis it will be found that those agents which have the greatest staying power against the ravages of this disease act almost exclusively by the support which they give to the nervous system. This is true of strychnin, the hypophosphites, atropin, cod-liver oil, cayenne pepper, arsenic, electricity, and other drugs and agents that are constantly employed in the treatment of this disease.

In keeping with this theory I made an effort some years ago to reach the lung condition of this disease through the pneumogastric nerves by massaging, kneading and compressing them through the overlying textures in the neck. This benefited the cough and expectoration and improved the patients in other ways, but it became evident after a while that the influence of this measure did not possess sufficient stimulating power to make it of decided value. I then had in mind to stimulate these nerves by stretching them according to the methods of M. Jaboulay,[1] who had obtained good results from this operation in severe cough associated with exophthalmic goiter, when it appeared to me that the subcutaneous introduction of some well-known conservative irritant, like nitrate of silver, immediately over the course of the nerves in the neck might furnish the stimulus necessary to modify the morbid condition of the lungs. That counter-irritation over the trunk of a nerve serves to enhance the tone and resistance of the

* Presented in a Symposium on Tuberculosis, to the Section on Practice of Medicine, at the Fifty-first Annual Meeting of the American Medical Association, held at Atlantic City, N. J., June 5-8, 1900.

1. Stretching the Pneumogastric Nerve, M. Jaboulay, N. Y. Medical Journal, May 7, 1898, abstracted from Lyon Medical, April 17, 1898.

region to which the latter is distributed is a well-recognized therapeutic principle in other fields of disease. Thus, the influence of acupuncture, and of stretching the sciatic nerve in sciatica, the application of a blister over the root of a spinal nerve in herpes-zoster, or an intercostal neuralgia, are well-known examples of this class of remedies.

Nitrate of silver was selected for this purpose, not because it was believed to be the only agent that could furnish the requisite degree of stimulation, but because more was known concerning its hypodermic use and action than of some others that might have been employed. In searching for the proper dose to be injected it was found, after many trials, that 5 minims of a 2.5 per cent. solution of this agent answered the purpose best in the greatest number of cases, preceded by a cocain solution of the same strength and dose—the latter being used to abate the pain which would be produced by the former when given alone. The point of introduction is immediately over, or slightly behind, the pulsating carotid artery in the neck, between the angle of the lower jaw and the clavicle. In order to avoid puncturing the underlying blood-vessels it was important to lift the skin between the thumb and the forefinger of the left hand and to push the needle just through the skin. To introduce these agents the following is a very practical plan: Inject the cocain solution, detach the syringe from the needle, and let the latter remain in the puncture. Wash out the syringe with water, draw the silver solution into the syringe, attach the latter to the needle and throw in the required amount. Or a double-barreled syringe containing a single nozzle, to which is attached the needle, may be used. One barrel is filled with the silver and the other with the cocain solution, and the required quantity of each may be injected without detaching the syringe from the needle. The cocain solution should be renewed once a week.

The side of the neck in which the injections are administered is of considerable importance. As a rule, the first injection, and most of its successors, should be given on that side below which the involved lung is located; for it will be found that the vagus on the side of the affected lung is in many phthisical persons more sensitive to pressure than the one on the other side—indicating that the lung and the nerve of that side are simultaneously involved.

The number of injections which are necessary depends on circumstances. The first injection is repeated in a week or ten days, unless there remains too much local irritation. The same interval should elapse between all the successive ones. In urgent cases due to excessive cough I have repeated the injection in three or four days. When both lungs are involved I have in a number of instances given an injection on each side at the same time. There is no special limit to the number of injections that may be given. Twenty-one is the highest number I gave to one patient.

The local effects of the injections show themselves in a nodular, sometimes in a diffuse swelling, and in redness and pain, but in no instance have they become extremely pronounced. Small abscesses do occur occasionally, and in more than two thousand injections, sloughs have occurred twice; but the latter result was probably due to the fact that two successive injections were made in too close proximity to one another. This is to be avoided. So far as my experience extends, the abscesses do no harm, and may do good, inasmuch as they prolong the counterirritant effect.

I have used the silver injections in more than a hundred and fifty cases of pulmonary consumption—extending over a period of twenty-one months—and I now take the liberty of analyzing this therapeutic experience in so far as it has any bearing on the symptoms of this disease. This experience is based partly on that obtained in 40 cases of phthisis, treated with the silver injections since September, 1898,[2] and partly on over a hundred cases treated since in the same way. The results of treatment in the above-named 40 cases after the lapse of about a year and a half is as follows: There were 7 incipient cases. All of these are well and at work, except one. He had a slight relapse during last winter, but responded to the injections a second time, and is well again. Eighteen were in the second or advanced stage. Of these, 5 died, 2 continue invalids and 11 are well and at work. Of the 15 in the third or far-advanced stage, 12 are dead, and 3 alive, 2 of whom are able to be about and do light work. In regard to the high death-rate among the far-advanced class, it may be said that 7 of these were certain to die when the injections were begun—the latter having been given merely for the purpose of ascertaining their influence on such cases. Taking it altogether, therefore, there remains a little over 50 per cent. of the patients of all stages of the disease who are practically well at the end of a year and six months.

The influence of the injections on the symptoms of phthisis may be summed up as follows:

Cough and Expectoration.—Most patients testify that the cough, and especially the expectoration, are increased during the first and sometimes the second day subsequent to the injections, and then gradually diminish. I have seen both cough and expectoration practically relieved by one or two injections in some incipient as well as in some advanced cases. In far-advanced cases their action on these symptoms is less marked, although on the whole it is beneficial. Besides their beneficial influence on the cough and expectoration, the injections also relieve dyspnea and oppression in the chest. This property is well shown in the alleviation which they give to the symptoms of asthma. One consumptive patient, who spent over a year in the Rocky mountains, and who has received a number of injections since his return, stated that "the injections seem to have an effect on respiration similar to that which is produced by a high altitude, inasmuch as I must breathe stronger, deeper and quicker for a day, and sometimes longer, after each insertion." In a paper published in the *Philadelphia Medical Journal* of June 2, 1900, Dr. Richard B. Faulkner, of Pittsburg, stated that in the *New York Medical Record*, of September 25, 1880, he reported a case of a lady, aged 50, a life-long asthmatic, who suffered continuously for 40 days with an attack, and in which morphin, nauseants, antispasmodics, and everything had failed. At the end of this time he applied counter-irritation over the course of the vagus, and relief followed so rapidly and absolutely that ever since he considered this one of the most important of all therapeutic measures. In a number of cases I have seen similar relief follow in the symptoms of asthma from the counterirritation which is caused by the injection of the silver nitrate over the vagus in the cervical region.

Vomiting.—This is one of the most annoying symptoms of phthisis in its lesser stages. It commonly occurs after meals, and is nearly always preceded by cough. The injections measurably control it. A female with

2. Philadelphia Medical Journal, Feb. 11, 1899.

incipient infiltration of the right apex, and who is now in her fifth month of pregnancy, was at once relieved of her nausea and vomiting incidental to her pregnant condition after the first injection, which she received over a month ago. This may be a mere coincidence, but it deserves mention since the gastric disorder ceased after the silver was administered.

Appetite.—The power of eating is frequently increased, and sometimes to a remarkable degree. This was, of course, most noticeable in the incipient and advanced, although it also held true in some of the far-advanced cases.

General Strength.—This was greatly benefited in most of the incipient and advanced cases, and also in a number of the far-advanced cases, especially if the injections were combined with regular systematic rest. How to account for the improvement in this respect, which sometimes follows immediately after an injection, is perhaps difficult to explain, but the fact exists and forces itself too often on one's attention to escape notice.

Physical Signs.—In many of the incipient, in some of the advanced, and in a few of the far-advanced cases, there was noticed a pronounced betterment in the physical signs.

Fever.—A reduction of temperature has been observed frequently by the writer. This has also been noticed by others.

Night-Sweats.—In a number of cases night-sweats have ceased.

Weight.—The gain in flesh is principally confined to incipient and advanced cases, but it has also been noted to some extent in far-advanced cases. Indeed, this phenomenon, as it has shown itself in some instances, is really surprising, since it seems barely possible that an almost insignificant quantity of nitrate of silver thrown into the neck once a week should, as I have observed in a number of cases, increase the weight from 4 to 6 pounds a week. Thus, of five patients who have gained most, one gained 5 pounds the first week after the injections were begun, 6 pounds the second, 4 pounds the third, and 3 pounds the fourth week. Another lost 1 pound in two days immediately preceding the first injection, gained 1 pound first week after injection, 4 pounds in second, 3 pounds in third, and 4 pounds in fourth week. Another lost 3 pounds in the five days immediately preceding the first injection, gained 2 pounds in first week after injection, 3 pounds in second, 2 pounds in third, and 4 pounds in fourth week. Another lost 1 pound during week preceding first injection, gained 3 pounds in week after first injection, 4 pounds in second week, and 2 pounds in third week. Another gained 7 pounds in six days after first injection, 3 pounds in second, and 2 pounds in third week. Not all the patients who were benefited by the injections gained in flesh, however, for some lost in weight, or remained at a standstill while improving in every other respect. In regard to other treatment which my patients received, it may be said that some took quinin., strychnin and the hypophosphites, while a number of them in the very early history of the introduction of the treatment, received nothing but peppermint water, or some other placebo. So far as food is concerned, it may be stated that some were nourished well in their homes and in a hospital, yet a number were dispensary visitors, and were naturally subject to the vicissitudes of food-supply that are incidental to the poorer classes of society.

Herewith is given an abstract of the history of 10 cases which were treated with the silver injections.

INCIPIENT CASES.

CASE 1.—C. F., colored, age 25, married, was seen first January 5, 1899, when she said she coughed since 1898. Her cough was constant and she suffered a good deal from dyspnea. There were impaired percussion resonance in left supraclavicular fossa, roughened respiration and sonorous râles in same area and extending to a point below the clavicle and into the supra-scapular fossa, on same side. Her weight was 119½ pounds. Five minims of a 2.5 per cent. solution of silver nitrate was injected into the left side of her neck, and she was given a teaspoonful of peppermint water three times a day. January 7 she presented herself and reported that cough and expectoration were very much improved. January 12, she was better in every respect. Physical signs were much improved; weight, 122 pounds. March 7, physical signs gone, except impaired percussion resonance; coughs scarcely any; weight 125½ pounds.

CASE 2.—L., Male, aged 27, colored and married, was first seen Dec. 23, 1898, when he said that he coughed and expectorated a great deal during the last eight or nine years. Has anal fistula of some months' duration. His physical signs consisted of dulness, and moist râles in the left apex, extending to the middle of the chest in front on same side, also of dulness and a few moist râles in the left supra-scapular fossa; his weight was 120 pounds. Tubercle bacilli were found in his sputum. He had, under the direction of another physician, been taking half-teaspoonful doses of equal parts of comp. tincture of cinchona, and of syrup of the hypophosphites four times a day, for several weeks. December 27, his weight was 119 pounds, and his general condition the same. Injected 5 minims of a 2.5 per cent. solution of silver nitrate into the left side of his neck. No other internal medicine except that which he took before. December 31, weight, 120¼ pounds. January 2, 1899, weight, 121½ pounds. January 6, weight, 124 pounds. He felt much better, and his cough and expectoration were almost entirely gone. Injected 5 minims of silver nitrate into left side of his neck. January 11, weight, 126¼ pounds; injected 5 minims into left side. January 13, weight 129 pounds. Same internal treatment as before. Physical signs improved. March 10, weight, 132 pounds; injected 5 minims into left side. January 20, weight, 133 pounds. He now went to work and continued at it until November 20, when his weight had sunk to 127 pounds, and as he said he "caught a cold." On January 16, 1900, his weight was 128 pounds, and he felt good. At present writing, May 25, he weighs 130 pounds, is working, and feels strong and good. There are some dry, but no moist râles in his chest, and the dulness remains about the same as it was. His evening temperature is normal. When we consider that phthisis in the colored race always offers a very stubborn resistance to treatment the results in this one particular case may, perhaps, be regarded rather favorably.

CASE 3.—J., male, aged 25, colored, was seen first May 5, 1899. Had lost two brothers and one sister of phthisis, and had been sick for three months with cough, expectoration, loss of flesh, poor appetite and sleep, chills, dyspnea and great weakness. There were dulness in lower half of left lung anteriorly and posteriorly, and moist râles in same area. Weight, 166 pounds. Injected 5 minims 2.5 per cent. solution into left side of neck, and gave internally the syrup of hypophosphites and strychnin. May 11, weight was 167 pounds. Injected 5 minims of silver solution on right side of neck. May 18, weight was 171½ pounds. May 25, weight was 174 pounds. Injected 5 minims on right side. June 1, weight was 177½ pounds. Injected 5 minims on left side. June 9, weight was 176 pounds. Injected 5 minims on left side. June 15, weight was 180. June 22, weight was 180. Injected 5 minims into right side. June 29, weight was 182½ pounds; temperature, pulse, physical signs normal.

When last seen, six months ago, this patient was in good health. How he is at present I am unable to say.

CASE 4.—P., aged 47, white, came under observation July 7, 1899. Had lost in flesh; dyspnea, poor appetite and cough and expectoration since previous January. No family history of lung disease was present. There were lessened respiratory movement in right chest, impaired percussion resonance in right apex and subcrepitation in latter area. Weight, 125 pounds. Injected 5 minims of silver solution into right side of neck, and internally he received syrup of the hypophosphites and strychnin. July 14, weight, 130 pounds. July 21, weight, 136 pounds. Injected 5 minims into left side. July 28, weight, 140 pounds. September 4, weight, 143 pounds. September 7, injected 5 minims on right side. September 12, weight, 145 pounds. September 19, weight 147 pounds. Injected 5 minims on right side. September 26, weight, 148 pounds.

This patient is doing well now.

ADVANCED CASES.

CASE 5.—L., age 35, female, with a family history of phthisis; came under my observation September 12, 1898. She was among the first of those who received the injections. She had been sick for three years, and at this time she coughed and expectorated a great deal, felt tired and weak, had lost in flesh, had a poor appetite, and occasionally spat blood. Tubercle bacilli were found in her sputum. Her weight was 96¾ pounds. There were dulness and moist and sibilant râles in supra and infraclavicular regions on right side. On this date she received 3 minims of a 10 per cent. solution of silver nitrate, without cocain, in the right side of her neck—a dose which produced more irritation than necessary. She had been taking the syrup of the hypophosphites and strychnin, and these were continued. She began to improve in general strength, cough, expectoration and wheezing in the chest, and in a week had gained a pound, and was eating better. In two weeks an abscess had formed at the seat of injection, which discharged, and she weighed 100 pounds. She continued to improve, and altogether received eight injections. She gradually gained in flesh until now she weighs 112 pounds and is practically free from all cough and expectoration. The physical signs, except the dulness, have disappeared.

While this patient did not gather much in flesh, I think it is difficult to make her gain in this respect, for in the early period of her invalidism I treated her in the hospital for four months, and with all the best food and nursing that the hospital could give her she only gained 4 pounds—from 102 to 106—in that time. On the other hand, she gained more readily under the silver-nitrate injections, although she was not receiving the good care and the nourishing food that she obtained in the hospital.

CASE 6.—C., aged 69, laborer, was first seen September 1, 1898, when he said he had been coughing for eight months and had very profuse yellow and thick expectoration, dyspnea, palpitation, vertigo and a poor appetite, but was without a family history of phthisis. There were dulness in left supra- and infraclavicular regions and sibilant and crepitant râles over the whole chest. On September 27, he received 5 minims of a 1 per cent. solution of silver nitrate into the left side of his neck. October 4 he weighed 132¼ pounds. October 11, he weighed 132½ pounds, and received 5 minims of a 2.5 per cent. solution of silver nitrate into the left side of his neck. November 5, he was very much improved, his weight was 139 pounds, and 5 minims of the silver solution were injected into the right side of his neck. November 17, he coughed very little, had no expectoration and weighed 142 pounds; 5 minims of a 2.5 per cent. solution were injected into the right side. December 3, he weighed 142 pounds, and received 5 minims of a 2.5 per cent. solution into the right side. January 10, 1900, he weighed 143 pounds, and received same dose of silver on right side.

CASE 7.—H., male, aged 42, came under treatment October 4, 1898. He coughed and expectorated for ten years. During the last two years his condition became much aggravated. He was tired, had much dyspnea, and spat blood occasionally. There were dulness in the upper and middle parts of his left chest anteriorly, and mucous râles in the same area. Weight was 133 pounds. Injected 5 minims of a 2.5 per cent solution of silver nitrate into left side of his neck. October 25, same injection; weight, 138 pounds. November 12, same injection; weight, 140¼ pounds. May 12, 1900, weight, 146 pounds. Feels well and has been working for a year. Physical signs, except dulness, have disappeared.

CASE 8.—R., aged 43, blacksmith, married, and sick for one year, was seen first December 20, 1898. He then had a great deal of cough, profuse expectoration, chills, fever and night sweats, and also spat some blood; morning temperature was 101.6. He had lost about thirty pounds in flesh, and weighed 137 pounds. He had pleurisy in the right lung, and partial infiltration of the whole of the lung on the same side.

He received the usual quantity of silver solution, and gained 7 pounds in six days after the first injection. He received no other medicine. He was very poor, on account of his protracted sickness, and lived on the charity of his friends. In six weeks after the first injection was given he went to work at his trade, and has remained at it ever since. He had not been able to work for eight months before he came under my care. He received altogether 18 injections, at the usual intervals, and gained altogether 28 pounds. All his physical signs cleared up and his symptoms disappeared.

FAR-ADVANCED CASES.

CASE 9.—M., male, aged 47, chronic alcoholic, came under my care May 19, 1899. No family history of phthisis. He coughed a great deal and had profuse expectoration. His appetite was poor, bowels loose, and his breathing embarrassed, and he had lost a good deal of flesh. His weight then was 145 pounds. There was dulness in left apex extending to second intercostal space in front and to spine of scapula. In this area there were numerous moist râles and a small excavation below the clavicle. Tubercle bacilli were found in the sputum. He received nine silver injections altogether, together with strychnin, quinin and salicylate of soda, internally, and he gradually lost flesh for a month, when he weighed 137½ pounds. After this he gained, and two months later he weighed 142½ pounds.

A short time after this he went to work at his trade, and has been engaged at it steadily since. He now weighs 145 pounds, and has a normal pulse, respiration, and temperature. The physical signs have all disappeared, except the dulness, which still remains, although in a less pronounced degree, and the location of the cavity can scarcely be made out.

CASE 10.—S. C., male, aged 25, clothier, came under observation September 8, 1899, when he stated that he had been coughing and expectorating for two years, also had night-sweats, much dyspnea, poor appetite; frequently vomited, and had lost flesh. He weighed 117½ pounds. There was dulness in the left supra- and infra-clavicular regions, together with moist râles over this area, and a good-sized cavity below the clavicle. Tubercle bacilli were found in his sputum. He began to improve in cough, expectoration, vomiting, dyspnea, night-sweats and physical signs after the first injection. He gained 12½ pounds in flesh and has followed his vocation for four months. The physical signs are very much improved, and he received altogether fifteen injections.

The deductions which may be drawn from the above-described action of the silver nitrate injections are—

1. That their best results are obtained in incipient cases, both in regard to the symptoms and physical signs.

2. That in most of the advanced cases they have a beneficial and, in some instances, an exceptional influence on the symptoms and physical signs.

3. That in the great majority of the far-advanced cases they ameliorate cough, expectoration, and other

symptoms temporarily, while in some instances their effects are apparently lasting.

In conclusion, it may be urged that the injections are too simple—too insignificant—to be of service in the treatment of phthisis, but any one who takes a broad and impartial view of the whole field of phthisiology must feel that the essential method of alleviating phthisis does not and can not consist of a complicated mechanism. This must be true, or in what other manner can we account for the so-called spontaneous cures—the healed phthisical lesions found in many lungs on the post-mortem table or in the dissecting-room, in which death did not result from phthisis? The cure in these instances—for cure it undoubtedly is—was simple; was not brought about by the administration of formidable doses of refined remedies, or was not the outcome of special treatment administered through complicated machinery and expensive paraphernalia; but in all probability it was the sequence of some change of habit, or was effected by calling into play some new influence of a terrestrial, social, psychic, or moral character, which diverted the abnormal movement into a channel of health so gradually and so imperceptibly as to elude, perhaps, even the consciousness of the patient. By this I do not wish to convey the idea that the cure of the disease is always readily and easily accomplished by art, but that this is possible in many instances does not admit of doubt; and if we are not able to do as well or better than nature, we ought to follow the example of the immortal Sims, who, in his despondency after the loss of his two first patients, tore his shingle off the window, threw it into the well, and vacated the town.

7.36
1901

TUBERCULOSIS OF THE LUNGS TREATED BY COMPRESSION WITH NITROGEN AFTER THE METHOD OF MURPHY.

WITH FURTHER REMARKS ON THE RATIONALE OF THE PROCEDURE AND A RECORD OF EXPERIMENTS ON DOGS.*

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More than two years have elapsed since the idea of artificially compressing a tuberculous lung was put into extensive practice. During this time the pathology of compressed tuberculous lungs has been carefully studied, the literature has been more thoroughly searched for the expressions of clinicians and pathologists as to the value of compression of tuberculous lungs, such as results from pleurisy with effusion, either serous or purulent, and a series of experiments on dogs has been made to determine the effect compression has upon healthy lung tissue and to observe what changes, if any, are to be found in the pleura as the result of the prolonged contact with these membranes of agents used for compression, such as nitrogen and normal-salt solution. At the Columbus meeting of the AMERICAN MEDICAL ASSOCIATION I reported in detail 53 cases of pulmonary tuberculosis, in its various stages, that had been treated by means of intrapleural injections of nitrogen. Many other cases were reported more briefly. Since that time about 100 new cases have been treated. Time and space will not permit a careful record of these cases, and I shall direct your attention to those cases in particular that illustrate some of the points I wish to emphasize.

* Presented in a Symposium on Tuberculosis, to the Section on Practice of Medicine, at the Fifty-first Annual Meeting of the American Medical Association, held at Atlantic City, N. J., June 5-8, 1900.

Furthermore the results are of little practical value at this time.

It will not be a waste of time to refer again to the overwhelming evidence, clinical and pathological, bearing on this point that is to be found in medical literature. I will direct your attention to the paragraph which appears in Stoke's work on "Diseases of the Chest," published in 1844, in which he says: "In many cases, where the disease—speaking of pulmonary tuberculosis complicated by pneumothorax—becomes chronic, we may observe a singular suspension of the usual symptoms of phthisis; the sweats cease; the pulse I have known in some cases to become quiet and the patient may gain flesh and strength to a surprising degree." Blakiston, in his work published in 1848, in the chapter on the termination of phthisis, cites several cases of recovery that bear on this question. In the works of Jaccoud, Williams, Cornet, Fowler and Godlee, Paget and a number of older as well as more recent writers,

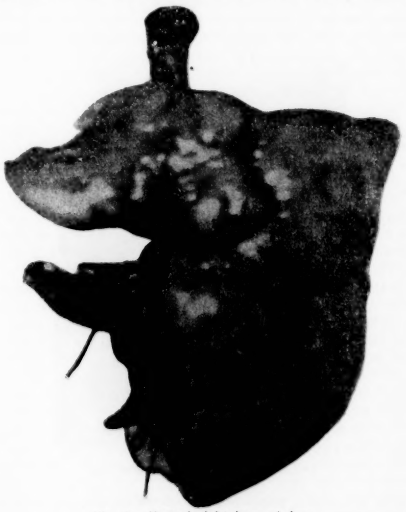

Fig. 1.—Normal right lung of dog.

may be found cases of pulmonary tuberculosis either very much improved or cured as the result of some such complication as pneumothorax or pleurisy with effusion which kept up for some time a more or less thorough compression of the organ.

You are all familiar with the very interesting chapter in the history of medicine that deals with the development of the operation of paracentesis of the thorax for pleurisies with effusion. You know how often this operation has been urged only to be condemned sooner or later by some one driven to do so by adverse experiences. Almost a constant warfare was kept up until Trousseau pointed out the indications for the operation that you are all familiar with. Since Trousseau's time some changes have been made in the indications, and I may say, without fear of contradiction, that at the present time, knowing, as we do from the experiments of Eichhorst and others, that more than one-half of the cases of pleurisy with effusion are tuberculous, the disease being secondary very frequently to tuberculosis of

the lung, the tendency is to allow the fluid to remain, unless special indications arise to make its removal imperative. This question of the etiology of the ordinary pleurisy with effusion and the indications for the removal of the fluid has an important bearing on the question under discussion, but it is too complicated to be carefully considered at this time. I may mention, as briefly as possible, a case of pulmonary tuberculosis, complicated with pleurisy with effusion, that occurred in the practice of Dr. Murphy eight years ago, and that was largely responsible, I believe, for the ideas that led to his original experiment of injecting nitrogen into the pleural cavity to compress tuberculous lungs. The case was that of a middle-aged woman from LaSalle, Ill., who consulted him for pulmonary disease, which proved to be tuberculosis. Physical signs were detected over the entire left upper lobe and tubercle bacilli were demonstrated in the sputum. The woman was very much emaciated, the pulmonary disease rather widespread, and an unfavorable prognosis was made. Within a few weeks of her visit she developed left pleurisy with effusion, resulting in thorough compression of the lung,

Fig. 2.—Compressed left lung of dog.

with a gradual improvement of pulmonary symptoms and finally a complete recovery from both pulmonary and pleural diseases. I had an opportunity of examining this patient two and one-half years ago, and the only evidence remaining of an old pulmonary tuberculosis was harsh, rough breathing over the left upper lobe. Symptomatically, she was perfectly well.

Last year Pinquet, of France, emphasized the desirability of maintaining pulmonary compression in pleurisy with effusion secondary to tuberculosis of the lung, and reported a case of tuberculization of the lung following thoracocentesis.

It has been urged that, if pleurisy with effusion is frequently, if not usually, secondary to tuberculosis of the lung, and even though many cases of pulmonary tuberculosis improve, or apparently recover, as a result of such compression, this change, it would seem, is only temporary, as is evidenced by the subsequent development of symptoms of active pulmonary disease. In this country we have the valuable statistics of Bowditch, who investigated the cases of pleurisy that occurred in his father's practice, and those of Osler, who reported, in his Shattuck lectures in 1893, that of 56 cases of pleurisy admitted to Johns Hopkins Hospital during the four years prior to his report, only four cases were known to have developed tuberculosis of the lungs subsequently. Späth[1] in an article, "Ueber Die Beziehungen der Lungencompression zur Lungentuberculose," cites a very interesting case to show the good effect of pleural effusion in preventing the dissemination of the infection into the compressed portion of the lung.

Observations on the favorable effect of compression of tuberculous lungs have not been limited to clinicians. Rokitansky made the observation that in spinal curvatures or other distortions of the thorax resulting in more or less compression of one or the other lung, tuberculosis of the organ so affected never occurred. In speaking of the effects of compression by pleural effusion, he said: "We may here further adduce the fact that the compression exercised by pleural effusion and a consecutive abiding increase of compactness of one lung as denoted by a sinking in of the thorax, in like manner extinguishes the tendency to tuberculosis."

It is a common observation in the dead-house that lungs that have been for some time tuberculous usually

Figure 3a.

show considerable fibrosis in the neighborhood of the affected areas, and this is particularly true of diseased lungs that have been subjected to pressure such as pertains to empyema, in pleurisy with serous effusion, pneumothorax, etc. Knowing as we do that tuberculosis of the lung heals, and we know there is always a tendency in that direction, it is of prime importance to determine how such healing is brought about. It is by a process of cicatrization, as we are forced to admit by studying tuberculous lungs. This is true, at least of the ordinary productive lesions of the disease. It is barely possible that some of the purely exudative lesions may undergo a complete resolution. The rational procedure in attacking tuberculosis would seem to be by some means best suited to favor the fibrosis, which is recognized as an essential in the healing process of all pulmonary tuberculous lesions. A second and important point to be borne in mind is that a patient's life is not in great danger from the mere existence within his lung of a few localized tuberculous lesions, but of a dissemination of the infection throughout the lungs, and the question very naturally arises how, under ordinary conditions, it is brought about. The majority of cases

of pulmonary tuberculosis unquestionably begin with a single or with a few localized lesions usually in the apex nearer the posterior than the anterior surface, or, as Birch-Hirschfeld puts it, in the territory of the posterior apical bronchus. From this point the dissemination goes on more or less slowly through the bronchi and air cells, the lymph-vessels, and the blood-vessels. The two most important points to be considered in the local treatment of tuberculosis are: 1, how can we favor the fibrosis or cicatrization which constitutes the healing process of tuberculous lesions? and 2, how shall we prevent a dissemination of the infection that already exists? In answer to the first, let me call attention again to the pathological observations that an unusual degree of fibrosis is seen in tuberculous lungs that have been for some time subjected to pressure. Dunin[2] demonstrated, by a series of experiments on dogs that were made to determine the effect of compression upon the lung parenchyma, that in the neighborhood of small bronchi where slight infection had occurred there was a marked tendency to an overgrowth of fibrous tissue. When we stop to think of the mechanical condition of the lung we can readily understand that when this organ is subjected to a considerable pressure the various avenues by which infection is disseminated are occluded. The movements of the lung are diminished or absent and it is impossible for the softened material from foci that are breaking down to be aspirated into adjacent healthy portions of the organ. That compression must also exert a considerable inhibitory effect upon the lymph circulation in the lung is quite evident when we consider the physical state of the organ. Further than this, it is a well-known law of physiology that whenever an organ is put out of function its lymph circulation is impeded or abolished. Better than these theories, which explain in a very satisfactory way the imperviousness of a compressed lung to a dissemination of tuberculosis, are the findings in the dead-house, which show that whatever there may be in a compressed lung in the way of solitary or multiple tubercles, these lesions always bear evidence of age and of having antedated the condition which brought about the compression. Indeed, the question has been raised: Can fresh tubercles develop in a thoroughly compressed lung? For some time I have searched for material that will determine this question and I have never been able to find anything that might be looked upon as a recent tubercle in lungs that have been compressed for a considerable period. Relative to the same point, Fowler and Godlee[3] say: "It would indeed be strange if tubercular disease could make rapid progress in a lung which is bloodless and airless and in which, therefore, all the ordinary channels through which the virus of the disease is spread, viz., bronchi, vessels and lymphatics, are more or less obstructed." Rokitansky[4], again speaking of the curability of tuberculosis, says: "Tuberculous pulmonary consumption is unquestionably curable, as we may infer from the appearances not infrequently observed in the dead bodies of persons who formerly had more or less suspicious thoracic affections and subsequently recovered. It is only by an investigation of the conditions under which these natural cures take place that we can hope to arrive at a truly rational mode of treatment." And further, "If the abscess (tuberculous cavity) be not too large it closes by a gradual approximation of its walls, which finally come in contact and coalesce. We then find in place of the previous cavern a cellulo-fibrous mass in which the bronchi end in blind sacs. This is of most frequent occurrence in the apices of the lungs, where the coexistence of open caverns and the presence of obsolete and cretified tubercles indicate the nature of the process that is here going on. The obliteration of a cavity of considerable size always occasions a corresponding depression of the surrounding parenchyma and a cicatrix-like folding and puckering of the pulmonary pleura, which is most frequently and distinctly observed in the case of those cavities which are often superficially situated quite in the apices of the lungs. The thorax is also depressed to an extent corresponding with the size and number of the closing vomicæ, as is obvious from the flattening and slight depression so frequently observed in the clavicular region. This process is undoubtedly favored very essentially by certain circumstances, amongst which we may enumerate the local depression of the thorax, the contraction of the cavity in consequence of the diaphragm abnormally pressed upward by the contents of the abdomen, the development of the emphysema in the parenchyma surrounding the cavern and bronchial dilatation."[5]

Aside from the fact that compression exerts a favorable influence over the healing process in tuberculosis by favoring fibrosis and by limiting the infection, that is, occluding the avenues by which the tuberculosis may become disseminated through the lung, we must consider the mechanical condition of a tuberculous lung from yet another standpoint, and I can do no better than to quote the remarks of Tidey:[5] "In health the respiratory capacity of the lung is commensurate with the semi-circumference of the thorax. The diseased lung may be regarded as decreased in bulk, so far as function is concerned, by the amount of lung tissue involved, and it follows that the best mechanical condition of respiration would be secured by reducing the thoracic cavity in proportion to the reduced bulk of lung. Natural processes of repair tend to secure these conditions, but only lead to complete cicatrization when the disease is of a limited extent. We find, then, clinically, a flattening of the chest wall, dislocation of adjacent organs or hypertrophy of the opposite lung. In so far as the inflammatory element in phthisis is concerned, rest and relaxation of the inflamed tissues seem indicated and essential to the healing process. The English schools aim at developing the latent resources of the lung so as to compensate for the loss of the respiratory surface." Tidey sums up the advantages of mechanical support as follows: 1, in early stages, to give comparative rest and relaxation to lung tissue; 2, in the stage of consolidation, to secure the same results, thereby limiting the risks of extension; 3, in the stage of cavitation, to promote the closure of cavities by directing healthy lung to encroach upon diseased areas, instead of relying entirely upon natural process of cicatrization; 4, diminished tendency to hemorrhage by reduced tension on vessel and cicatrical traction on walls; 5, the ultimate object is to obtain a smaller thoracic cavity filled with healthy lung instead of an enlarged thoracic cavity partly filled with diseased lung.

In a previous communication many references were made to the writings of some of the older authors on the subjects of pleurisy with effusion, pneumothorax, etc., complicating pulmonary tuberculosis. These it is useless to repeat. Many of the modern writers realize the advantage of compression in pulmonary tuberculosis. Cornet[6] says: "In fact, we find as the result of the development of pleurisy with effusion or of pneumothorax, not so seldom an improvement, even if temporary, of the condition (of the tuberculous lung) that is hardly to be explained other than that it is the result

of the compression of tissues in the neighborhood of the tubercle."

The general proposition that compression exerted upon a tuberculous lung favors cicatrization, and therefore the healing process, and that, so far as we know, tuberculosis of the lungs always heals by fibrosis or cicatrization, can not be lost sight of. That there is an enormous tendency for tuberculous lesions in the lung to heal is apparent from the great quantity of statistics that have been gathered bearing upon this point. Some of the most valuable of these observations are those made by Harris,[7] who found that 39 per cent.

Figure 3b.

of all individuals who died from causes other than tuberculosis gave evidence of healed or latent pulmonary tuberculosis. Schlenkir[8] found the same in 44 per cent. of the cases he examined. Birch-Hirschfeld[9] found, in an examination of 196 bodies dead from accidents, that 21.4 per cent gave evidence of healed or latent pulmonary tuberculosis. With this as a basis, we must conclude that, as far as local treatment is concerned, we have two important indications to be met. Both of these are pointed out to us when we study the pathology of the healing of tuberculosis in the lung. Given focus of tuberculosis in the lung, we must accomplish what nature always endeavors to do, first, to promote the development of scar tissue in and about the diseased area, and, until this is completed, to prevent the dissemination of the disease by occluding the various avenues that make this possible. Kurlow and Green (quoted by Cornet) demonstrated that in areas of healed tuberculosis, made up entirely of scar tissue or of scar tissue enclosing calcareous material, no virulent bacilli were found. As long as the center of the focus is caseous, virulent bacilli are present and are capable of renewing the disease the moment the barrier is broken.

While there is no doubt that in the majority of cases the areas of healed tuberculosis consist of scars enclosing caseous or calcarous material, we may find as the only remnant of a tuberculous infection one or more thick-walled cavities, from which tubercle bacilli have disappeared. This may gradually and slowly heal as a result of contraction of its fibrous capsule, but much more commonly the mechanical conditions are such that definitive healing is impossible. In such cases these cavities may be a constant source of annoyance to patients, in that they have an active secreting surface which keeps up a continuous cough with expectoration. Case 5 of our first report[10] illustrates this condition very well. The patient was a strong, rugged man of 30, who had had tuberculosis of the right lung five years. During the first two years of his illness he coughed violently, expectorated freely and had several attacks of hemoptysis. His weight had been reduced from 160 to 117 pounds. During the third year he coughed and expectorated less and his weight reached 135 pounds. During the fourth year there was a gradual improvement. At the time of our first examination, September 5, 1898, he complained of having paroxysms of cough with much expectoration; he had no fever; his weight was normal, and he was able to be at work. There were no physical signs in the lung except scattered crepitant

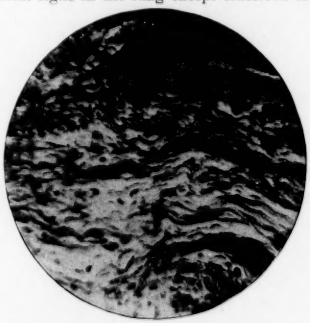

Fig. 4.—Fibroid area from compressed lung—high power. Section through a healed tubercle.

râles in the right lower lobe. Tubercle bacilli were demonstrated in the sputum. On September 7, 171 cubic inches of nitrogen were injected into the right pleural cavity. In this case we had supposed, on account of the paroxysms of cough with free expectoration, that a cavity existed which was more or less centrally located and which, therefore, gave rise to no physical signs. The compression was so thorough that the cavity was evidently emptied of its secretions, as the patient expectorated very freely immediately after the operation. He has been examined repeatedly since that time and every evidence of the disease in the lung had disappeared. There is no more cough or expectoration, and the patient even insists that the drum-stick finger ends and the curved nails are becoming less and less pronounced.

In our first publication on this subject, it was pointed out that pulmonary hemorrhage, the result of tuberculous disease, might readily be controlled by injecting nitrogen into the pleural cavity and thus thoroughly compressing the affected lung. Five cases of hemoptysis due to tuberculosis have been injected within the last year and in each instance it was possible to check the

hemorrhage almost immediately. One of these, Mr. H. S., a very pale, anemic individual, consulted us for repeated attacks of blood-spitting. At the time of his first examination he was expectorating a bloody material, which upon microscopic examination contained great quantities of tubercle bacilli. There were physical signs over the entire upper lobe and a few scattered râles over the left apex. His weight was 147 pounds, a loss of ten pounds since the onset of the disease. The physical signs were so much more widespread over the right lung that it was concluded the hemorrhage had its origin there, and it was decided to inject the right pleural cavity with nitrogen and check the hemorrhage by thoroughly compressing the lung. The operation was repeated at intervals of one to three weeks until four injections had been made, when the physical signs had practically disappeared from both lungs; he had gained 23 pounds in weight, which was 12 pounds in excess of his normal weight, and all symptoms of disease had subsided. The hemorrhage was checked immediately after the first injection and has never recurred. In the other cases there was no difficulty in controlling the hemorrhage when it was possible to compress the lung thoroughly. At the last meeting of the American Climatological Society, H. P. Loomis, of New York, reported some cases of pulmonary hemorrhage treated by intrapleural injections of nitrogen and stated that he had never failed to control the hemorrhage absolutely. As early as 1885 Cayley[11] induced an artificial pneumothorax on the left side to check pulmonary hemorrhage. He simply made an incision in the thoracic wall, introduced a double tube and in that way created an ordinary open pneumothorax. During the night following Cayley's operation his patient had two attacks of hemoptysis, spitting up four ounces and two ounces of blood. This is the earliest record that I have been able to find of an attempt to check pulmonary hemorrhage by the induction of pneumothorax. The method of Cayley, it is very evident, gives rise only to a pulmonary collapse and is much more difficult and dangerous than the simple procedure of injecting the pleural cavity with nitrogen until an actual positive pressure is obtained and the lung not only collapsed but considerably compressed. Williams, in his work on pulmonary consumption, advised the introduction of a styptic solution—tannic acid—directly into the bleeding cavity. The objection to this procedure is that the exact point of bleeding can not usually be determined and that the method involves much more risk than the simple intrapleural injection of nitrogen. These cases of pulmonary tuberculosis associated with hemoptysis not infrequently develop a considerable fever and other symptoms indicating increased absorption at the site of disease or perhaps more or less acute dissemination of the infection, and it is interesting to note the rapid diminution of fever following the injections, indicating in all probability that the absorption of toxic substances is interfered with as the result of the thorough compression of the diseased organ.

One of the greatest dangers that confronts a patient who has pulmonary tuberculosis is the infection of his respiratory tract with organisms that give rise to what is ordinarily known as a secondary or mixed infection. The important part played by this secondary infection, such as the production of bronchitis, in that way favoring a dissemination of tuberculosis, and aiding in the softening and breaking down of tubercular foci is too well known to be considered in detail at this time. The avenues by which this secondary infection is carried into the various parts of the lung are occluded, thus favoring the chances of healing of the tuberculous lesion. Subsequent to the compression of tuberculous lungs, the fever and expectoration diminish so markedly that we are forced to conclude that the rôle of the secondary infections has been reduced to a minimum. Furthermore, it is known that so long as tissues infected with tuberculosis are also exposed to the action of pathogenic micro-organisms the healing process can not be completed. Whatever there is in the direction of cicatrization is undone by the pyogenic organisms, when they are present in sufficient quantities. This is very well illustrated by the work of Prudden, who demonstrated by experiments upon rabbits that the mixed infection is largely responsible for the exudative phenomena and the cavitation in lungs previously infected with tuberculosis. The tissue changes so essential to the process of healing of tuberculosis are very much interfered with by the mixed infection, and in the general hygienic treatment of tuberculosis of the lungs one of the first indications has been to get rid of the secondary element of the infection. As Cornet puts it, healing of a focus of tuberculosis in the lung is probably always altogether the result of tissue changes which diminish or inhibit the absorptions of proteins derived from the bodies of tubercle bacilli.

One of the most difficult propositions in connection with this work has been the selection of cases suitable for the injections. In connection with our earlier cases we made it a rule to inject only those in which the lesions were unilateral and in which but one lobe was involved. A great number of our cases, however, have been operated upon in spite of the presence of the disease on both sides and the two questions rather difficult to decide in these cases are first, will the remaining area of respiration after compression of one lung be sufficient to maintain life when the opposite lung is also more or less involved? and, second, will there be a disposition on the part of the functionating lung in the direction of rapid spreading of the disease already existing? Within the last year a considerable proportion of the cases operated upon have had bilateral lesions and in many of them there has been a marked general improvement in spite of the widespread distribution of the disease. It has been suggested that the increase of function called for in one lung when its fellow is compressed will tend to disseminate the infection; that the increase in the pulmonary excursions would favor an aspiration of infective material and that if compression and complete suspension of function in one lung will favor the healing of tuberculous lesions, a vicarious emphysema or hyper-function will have the opposite effect. This assumption is incorrect both in theory and in practice. It must be remembered that the lung is inclosed in a bony cage that makes it impossible for its excursions to be much increased beyond the normal. A number of the cases included in the first report show conclusively that there is no tendency to an increased activity of the disease in the functionating lung when its fellow is compressed. One of our cases (No. 49 of the first report) who developed a tuberculosis of the left upper lobe, some time after he had been injected for a tuberculosis of the right lung, has had eight injections on the left side without the slightest tendency in the way of a relighting of the disease in the right lung. At a recent examination both lungs were found entirely free from physical signs, except a pleural rub on the left side, and two months have elapsed since his last operation. In this case one lung or the other has been compressed at different times for a period of twenty months and at

his last examination the patient was found nearly free from cough; his temperature and pulse normal and for the present at least he may be considered as having recovered from a bilateral tuberculosis that involved both upper lobes and the apex of the lower lobe on the right side. Forlanini, of Italy, in a personal communication to us about a year ago stated that he did not consider a bilateral distribution of the disease a contraindication to the compression treatment.

In several cases of very acute tuberculosis involving an entire lobe or the greater part of a lung, I have been called upon to compress the affected lung to stay the infection until the patient's general condition might improve sufficiently to admit of a change of climate and a continuation of treatment in the ordinary way. At the last meeting of the American Climatological Association, Dr. R. H. Babcock, of Chicago, for whom I have made a number of injections, stated that the compression seemed to him "to start the patients in the right direction."

On account of the frequency with which we meet pleural adhesions in the dead-house in bodies dead of tuberculosis of the lungs, it was believed that the majority of the cases that might apply for treatment would show pleural adhesions to such an extent as to make a compression impossible. In practice, however, we are forced to abandon the operation in only about 5 or 6 per cent. of the cases on account of pleural adhesions. It must be remembered that adhesions may be present here and there over the surface of a lung without interfering in any way with a thorough compression. Occasionally adhesions may be present anteriorly or laterally so that the needle must be introduced posteriorly and the lung compressed against the anterior thoracic wall. Mohr[12] studied the mode of displacement of the lungs in pleurisy with adhesion. In 23 cases in which there were no adhesions the lung was compressed in the usual manner against the vertebral column and mediastinum. Thirteen times it was compressed from below upward; 4 times from within outward; 4 times from behind forward; 4 times from before backward, and once from above downward. In some of our cases it has been necessary to puncture the thoracic wall at several points in order to find an area free from adhesions, and frequently we have in this way been able to bring about a considerable degree of compression in spite of circumscribed areas of adhesions.

It is impossible to determine by the usual methods of physical diagnosis whether or not adhesions exist. When a considerable pulmonary excursion can be demonstrated by percussion over the lower border of the lung, or when Litten's diaphragm phenomenon is present there is no doubt as to the absence of adhesions that will interfere with compression. There are many cases, however, in which these signs are absent, perhaps on account of the extensive infiltration of the lung, in which no adhesions are present and therefore it is impossible to determine whether or not the lung can be compressed until the needle has been introduced. On account of the danger of puncturing the lung and injecting the gas directly into the lung parenchyma, or perhaps into a vein, it is wise to determine whether or not the point of the needle is in the pleural cavity before attaching the tube. This can usually be very readily accomplished by instructing the patient to take a series of deep breaths as the needle is being introduced, when, if the point of the needle be within the free pleural cavity, a current of air can be heard to rush through the needle. In this way it is almost always possible to ascertain when the point of the needle is in the free pleural cavity. It is advisable to determine this point definitely, because of the slight danger from gas embolism in the event that the needle has been inserted into the lung and perhaps into a vein. With the exception of this point the technique of the procedure need not be repeated at this time. (See THE JOURNAL, Oct. 14, 21 and 28, 1899.)

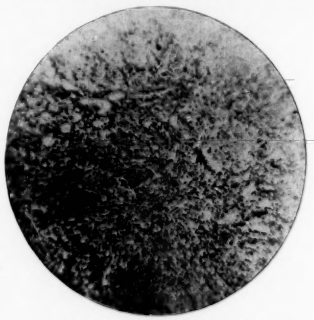

Fig. 5.—Section through acute tuberculous area in uncompressed lung.

Fig. 6.—Section through old tubercle in compressed lung. Low power.

As regards the possible accidents of the operation I may state here that there have been no unpleasant symptoms in any of the cases operated upon since the one referred to in the first communication, and since the adoption of the intercostal compress no cases of subcutaneous emphysema have been observed to follow the operation.

The hemiplegia that is known to develop occasionally in connection with diseases of the lung or pleura, or during and after various operative procedures upon the thorax that involve the lung or pleura, can not always be explained readily, and is not always due to the same cause. It is possible that a small clot may be dislodged from a thrombosed vessel and carried to the brain, and may cause a temporary or permanent hemiplegia. In some cases undoubtedly the hemiplegia is to be explained on the assumption that a gas embolism has occurred. Some observers believe that the paralysis is due to a local metastatic encephalitis, and still others believe the pleural irritation in some obscure, reflex way is responsible for the transient or permanent paralysis that ensues. The possibility of this accident should al-

ways be borne in mind, but its actual occurrence is too rare to be considered a serious objection to the operation. In a few cases patients have complained of numbness and tingling in the hand or the entire arm on the side of the operation, but this has always disappeared very promptly. The danger of hemorrhage from puncture of an intercostal vessel is scarcely to be given a serious thought, as no instance of it has occurred in the more than 600 thoracic punctures that we have made in connection with this work.

The danger of infecting the pleural cavity with the ordinary aseptic and antiseptic precautions taken is scarcely to be considered, as in all of the cases that have been injected there have been but two instances of pleurisy with serous effusion, and it is certainly unfair to conclude that these were due in any way to the injection of nitrogen.

During the past year we have been in the habit of making the injections somewhat more frequently than we did previously in order to keep the pleural cavity at all times well filled with gas and thus keep up a continuous compression of the lung for a period of several months, depending largely upon the patient's general

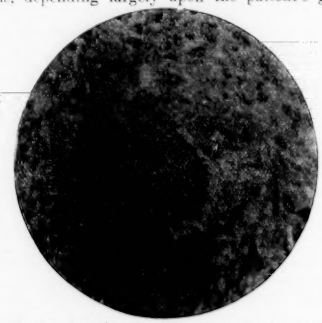

Fig. 7.—Section through acute tuberculous area in uncompressed lung. Low power.

condition and the physical signs detected in the lung when once the gas has been allowed to be absorbed.

The only objections that have been made to the procedure, so far as I am aware, are those of Samuel West,[13] who does not think that the rationale of the procedure is based on conclusive evidence. He believes that recent tubercle may be found in a collapsed lung, all evidence going to show that it developed after collapse, and that collapse of one lung is frequently followed by development of tubercle in the other lung.

In the Transactions of Clinical Society of London, Vol. xviii., West collected 24 cases of pneumothorax which recovered. The probable cause is specified in 18 cases. He states that 4 were certainly and 4 more probably due to phthisis; the others were due to emphysema, overexertion and injuries. West's own case was one of a young man who for some weeks had been an outpatient of the Royal Free Hospital and was thought to be phthisical. West says that "The cause of the pneumothorax we may assume to be phthisis, and the effusion of air appears to have acted in this case as the effusion of fluid often does, and for the time to have checked the progress of the disease."

The effect of compression upon the blood-supply of the lung has been the subject of considerable dispute and there seems to be some doubt as to whether a compressed lung is hyperemic or anemic. Some observers believe that the good effect of compression in pulmonary tuberculosis is due to the hyperemia and edema to which the lung tissue is subjected in its compressed state. Fütterer[14] reports a case in which the pneumothorax was due to rupture of the pleura pulmonalis of a tuberculous lung, and states that he "decided to wait some weeks to allow the patient to recover somewhat from the severe nervous shock he had experienced and to gain some strength as well as to permit the perforation to heal up, if the healing process could be established, and to put the supposed tubercular changes of the lung under the beneficial influence of edema and hyperemia, which are both present to a high degree in a collapsed lung, and which no doubt are powerful means of destroying the tubercle bacilli." In this connection it may not seem amiss if we refer again to the immunity from tuberculosis of individuals who suffer from valvular disease of the heart, giving rise to more or less passive congestion of the lung tissue. Eichhorst[15] says that a combination of pulmonary tuberculosis with valvular lesions of the heart is not so uncommon as was supposed. Statistics of Frommelt and Kidd show that from 7.2 to 8

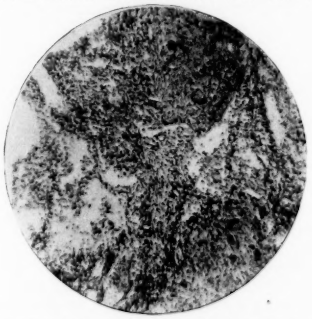

Fig. 8.—Acute tuberculous area in uncompressed lung. Low power.

per cent. of cases of valvular heart disease have tuberculosis of the lung. Potain found that 16.4 per cent. of cases of mitral stenosis are complicated with tuberculosis of the lung, and it is to be remembered that mitral stenosis, above all other valve lesions, gives rise to the greatest degree of pulmonary stasis, and therefore might be expected to give the greatest immunity to this disease. In Eichhorst's clinic 2 per cent. of the cases of tuberculosis of the lungs had valvular heart disease. On the other hand, there can be no doubt that in congenital stenosis of the pulmonary artery tuberculosis of the lungs is the rule. These statistics force us to the conclusion that in congenital pulmonary stenosis tuberculosis of the lung almost always supervenes sooner or later, but that mitral valve lesions do not by any means afford the degree of immunity to tuberculosis of the lungs that we formerly ascribed to them. That a lung thoroughly compressed must be comparatively anemic seems reasonable when we consider the mechanical change alone. The difference in weight between an atelectatic lung of a stillborn infant and that of an infant after a few respirations have been made would seem to be satisfactory proof of this. Schäfer and Symington[16] state, for example, that the lungs before birth weigh about one ounce and a half, but after com-

plete expansion by respiration they weigh as much as two and one-half ounces.

During the past year we have made a series of experiments on dogs to determine the effect of compression upon healthy lung tissue, particularly the effect upon individual air cells. It has been urged that when compression of a lung has been maintained for a period of months, or perhaps a year, some of the air vesicles must be permanently damaged to the extent of partial or complete obliteration from prolonged contact of the opposing intra-alveolar surfaces. Clinically, from a consideration of cases of pleurisy with effusion and empyema in which the lung tissue is reduced to a compact mass and held in that position for a considerable period of time, we know that no great damage is done in the direction of alveolar obliteration. Even in empyema, in spite of pleural adhesions that are present wherever the lung is forced against the parietal pleura, expansion follows gradually and slowly as soon as the pressure is removed. In the majority of these cases the lung expands almost entirely, and would always expand completely but for the limiting adhesions. In the cases of pulmonary tuberculosis that have been treated by

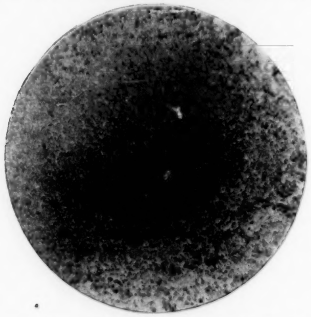

Fig. 9.—Acute tuberculous area in uncompressed lung. Low power. Marked necrosis.

compression there has never been any doubt as to the re-expansion of the lung after the gas has been allowed to become absorbed, even when the compression has been maintained as long as six to eight months.

To enable us to study the histologic changes in healthy lung tissue subjected to compression and to determine the effect upon the pleural surfaces, eight dogs were selected, the thoracic wall was prepared aseptically and nitrogen gas injected at intervals of from one to two weeks for a period of eight months. In four dogs normal-salt solution was substituted for the nitrogen. The gas was injected until the dogs became thoroughly dyspneic and until the respiratory sounds were altogether obliterated. I shall not repeat the records of these experiments in detail at this time, but limit myself to those findings that deal directly with the matter under discussion. No difficulty whatever was experienced in making the injections except that the mediastinum was ruptured in the second dog operated upon. This is an accident likely to occur in the dog, on account of the very thin mediastinal membrane. In the human subject the possibility of this accident need not be considered, as the membranes are very much thicker. The normal-salt solution was absorbed with greater rapidity, and, on account of its greater weight, it could not be injected in quantities sufficient to compress the lung so thoroughly as was the case with the nitrogen injections. Eight months from the time of the first injections the dogs were killed, the trachea clamped and both pleural cavities freely opened. The pleural surfaces were smooth and shining everywhere and, in fact, altogether free from changes, with the exception of a slight thickening of the pleura pulmonalis over a limited area in the sulcus interlobaris. The left lung was almost completely compressed, although it still crepitated slightly and floated in water. (Fig. 1.) In four instances the lungs were separated, a canula was tied into the left bronchus and inflation attempted. Over some of the dark, thoroughly atelectatic areas some little force was necessary, but at no point was it impossible to inflate the air cells thoroughly. The bronchi were then tied, the lung immersed in 5 per cent. formalin solution in water for twenty-four hours and then cut into small pieces for imbedding. Aside from slight epithelial desquamation, which was also found in the opposite non-compressed lung, no changes of any kind could be detected in the tissues. From the other four lungs pieces were prepared in their compressed state, and here also no changes could be detected.

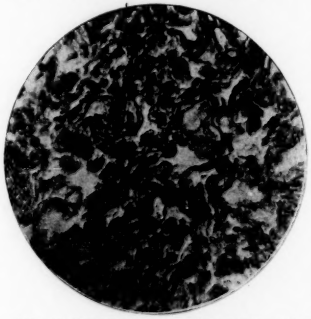

Fig. 10.—Area of compressed lung. High power. No tubercles. Air vesicles completely compressed.

These experiments merely proved, first, that nitrogen gas or normal-salt solution could be injected into the pleural cavity frequently and at short intervals without giving rise to infection or in any way causing untoward effects, and second, that healthy lung tissue may be kept in a state of thorough compression for a period of at least eight months without causing obliteration of air cells or in any way interfering with the re-expansion of the lung as soon as the cause of compression is removed.

At the last meeting of the ASSOCIATION I exhibited a specimen of tuberculous lung from a case of long-standing pleurisy with effusion which finally became purulent. The patient, Mr. M. A., aged 46, died as the result of his pulmonary tuberculosis soon after an operation for the empyema. He was admitted to Alexian Brothers' Hospital, Chicago, on Jan. 19, 1900. Eight years before, he had developed a pleurisy with effusion on the left side, which was aspirated several times, but in each instance recurred. His attack of pleurisy had been preceded by severe cough with expectoration, the result of a tuberculosis of the left lung. In spite of the fact that the effusion persisted, he remained in good health for a number of years, and in fact was feeling well until three weeks before his admission to the hospital, when he developed a severe cough

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with profuse expectoration, great shortness of breath and extreme weakness. It is noted on the history that he expectorated much mucus and very little purulent material. The physical examination showed the signs of the presence of fluid on the left side, an aspirating needle was introduced and the purulent nature of the fluid demonstrated. On account of the extreme shortness of breath it was decided to operate in spite of the fact that the physical signs on the right side denoted a diffuse acute tuberculous infection of that lung. The patient died twenty-four hours after the operation. At the post-mortem the left lung was found reduced to about the size of the fist and thoroughly bound down by adhesions; the right lung was literally studded with fresh, grayish tubercles, varying in size from a millet seed to that of a pea, with an old thick-walled cavity in the apex. (Fig. 2.)

It is interesting to note in this case that the few scattered tubercles in the left (compressed) lung are made up of thick scars enclosing calcareous material, all evidence going to show that they are old, and in all probability antedated the pleurisy with effusion that brought about the compression. In the opposite lung there is an acute diffuse miliary tuberculosis. This further bears out the view that tubercles can not develop in a thoroughly compressed lung, because of the fact that the avenues by which the infection is disseminated are occluded.

CONCLUSIONS.

1. Tuberculous lungs after compression show much fibrosis in and about the foci of disease; hence, extension from these foci is less likely to occur.

2. Tuberculous lesions probably never heal by resolution, always by cicatrization—this is particularly true of lung tuberculosis. Hence, in attacking them it is rational to further the natural tendency to cicatrization.

3. The danger of pulmonary tuberculosis does not lie in the presence of one or more foci of the disease, but in a dissemination of the infection throughout the lungs or the body generally.

4. Healing is probably, as Cornet puts it, altogether the result of tissue changes which inhibit or diminish the absorption of proteins derived from the bodies of tubercle bacilli.

5. Areas of healed tuberculosis may consist of: Scars, perhaps enclosing caseous or calcareous material, or of cavities lined with a thick wall. Kurlow and Green (Cornet) have demonstrated that in areas of healed tuberculosis made up entirely of scar tissue or of scar tissue enclosing calcareous material no virulent bacilli exist.

6. Tuberculosis in the lungs spreads either by continuity and contiguity or by dissemination of the virus through, 1, the air-channels; 2, lymph-vessels; 3, blood-vessels.

7. Good effects of compression, locally, are brought about by the limitation of areas of disease already existing, by favoring fibrosis in and about these areas; by occluding the avenues of dissemination of the virus, and by compressing cavities to enable them, mechanically, to heal.

8. Other effects of compression are due to rest to the organ as a whole, emptying of secretions, prevention or diminution of absorption of toxic bodies, prevention of secondary infections, the diminished tendency to hemorrhage.

9. There is no evidence that fresh tubercles can develop in a compressed lung.

10. Pleural adhesions are less common than might be supposed from a study of material in the dead-house. The lung may retract in various directions on account of circumscribed areas of adhesion.

11. Healthy lung tissue may be compressed for a year or longer and retain its capacity for expansion upon removal of pressure.

12. The actual risk of the operation of intrapleural injections of nitrogen is very slight. No accidents have occurred since the first report was made.

13. Subcutaneous emphysema may easily be avoided by using the intercostal compress.

14. Uses of intrapleural injections of nitrogen: 1, curative in pulmonary tuberculosis for reasons mentioned above; 2, palliative—to prolong life for weeks or months, though the disease be too extensive to make recovery probable; to diminish fever and expectoration; 3, to check pulmonary hemorrhage; 4, to compress cavities, tuberculous and others, and establish mechanical conditions that will permit their healing; 5, to compress the lung just prior to surgical operations in which the pleural cavity is to be freely opened and to determine presence or absence of pleural adhesions before opening pleural cavity to drain abscesses or bronchiectatic cavities, cysts, etc.

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DISCUSSION ON PAPERS OF DRS. FREUDENTHAL, ANDERS, EDSON, AMBLER, MAYS AND LEMKE.*

DR. VICTOR C. VAUGHAN, Ann Arbor, Mich.—I listened to the papers read with interest and with profit. The diagnosis of the prebacillary stage of tuberculosis is important, because that is the time when it should be diagnosed if we wish to accomplish anything in the way of treatment. I am much interested in the remarks made in reference to temperature as a means of diagnosing tuberculosis. I believe that the temperature curve in tuberculosis is much more typical than it is in typhoid fever, although there may be various conditions which affect the temperature curve, such as exercise, which influences it very much. I almost invariably have the patients take it at 8 a.m., at 12 m., and at 4 and 8 p.m. When the temperatures are taken at these hours the highest temperature will be found almost invariably at 4 p.m.

As to the possibility of complete recovery from tuberculosis, it is no doubt a question of *restitutio ad integrum*. In cases of peritoneal tuberculosis, where a laparotomy had been performed for that condition, and where, years afterward, another laparotomy was done for a hernia or something else, it has been found that the tubercular lesions had disappeared. Two years ago I took a large number of rabbits and inoculated them with virulent cultures of the tubercle bacilli; after a lapse of six weeks one-half that number had their abdominal cavities opened; in these cases we saw tubercular nodules, some of which were cut out and subjected to a microscopical examination, showing conclusively the presence of the tubercle

*Dr. Anders' paper was published last week; those of Drs. Freudenthal, Edson and Ambler were published elsewhere.

bacilli, not only in the instances where there were tubercular lesions in the omentum and peritoneum, but also over the liver, which was dotted with tubercles. All these that were operated on lived, while the control animals all, or nearly all, died. Of course, statistics show us, as well as the observations, that tuberculosis is most easily curable. Rest, I am sure, is a great factor in the treatment of tuberculosis, and this is the reason why great benefit is obtained from sanatoria treatment. The question as to the amount of exercise and to what extent the patient should rest must be decided by each individual case. Where there is much temperature there must be complete rest. When the patient is not in a febrile condition, or the temperature is not above 100.5 or 101, considerable out-door exercise may be indulged in. Out-door life in the Western part of the United States or in Colorado is a good thing, but we do not utilize it enough in the treatment of tuberculosis—as we should. I recall a severe case of tuberculosis occurring in a patient who lived several miles from my office; this patient came every day to my office for treatment, rain or shine, cold or warm; the cough disappeared, the bacilli disappeared and the patient was apparently well. Out-door exercise is not as much utilized as it should be.

Dr. Mays' paper is certainly an interesting one. I had occasion some time ago to write an article on argyria, and I was surprised in looking up cases to find so many had developed tuberculosis when they were saturated with nitrate of silver. It does not seem to me that it is curative under these conditions.

DR. DELANCEY ROCHESTER, Buffalo—Regarding the paper of Dr. Freudenthal, showing the effect of occupation, he mentions tailors particularly. It struck me that one of the chief dangers in tailors suffering from tuberculosis was from the dissemination of the disease. It is their habit to bite and wet the thread and then to go on sewing; in this way they can get the tubercle bacilli distributed widely. The tailor-shop is a marked factor in the spread of tuberculosis. I am also glad he spoke of the common occurrence of the disease of the upper air-passages associated with tuberculosis. In almost all cases of tuberculosis we find more or less disease of the nose and, particularly of the nasopharynx, and sometimes of the tonsils. The nasopharynx is particularly a nidus for the micro-organisms. I have many cases in which a careful examination showed a secretion flowing in large amounts, quite persistent, and the washing away of the secretions resulted in disclosing other symptoms of pulmonary tuberculosis.

Dr. Anders referred to the prebacillary stage of tuberculosis; in this stage the temperature should be carefully watched. There is another point to which I wish to refer, the temperature as it occurs in the healthy. Observations show that there is a normal temperature curve, the lowest point being reached between the hours of 12 and 6 a.m., and the highest between 12 and 6 p.m. But these observations are not numerous enough to make statements absolutely reliable.

Dr. Edson has brought out the very great importance of rest. The index in regard to the question of rest is to be found in the pulse, the temperature, as well as the physical signs. To place a person at active exercise when he has a marked elevation of temperature, and other evidences of an active inflammatory process, or evidences of softening or a bronchitis, with danger of breathing scattered tubercle bacilli into the lungs and exciting the pneumonia, tubercular in origin, would be a great mistake. Rest is of great importance in the presence of numerous râles.

In regard to the case of Dr. Ambler, that of serum-therapy, it is not such a remarkable one when we consider that these cases are treated in a sanatorium, in a climate where cases recover without any other treatment at all, and where they naturally get well. So, I hardly think one can lay the good results obtained to any serum, particularly when we believe they will get well without it. The sanatoria treatment of tuberculosis is the best treatment these patients can get. At Saranac Lake these patients get nothing in the way of medicine except cod-liver oil, and nearly all cases get well. Rest and out-door exercise is the treatment.

Dr. Lemke's report is interesting as bearing on rest. His statement shows remarkable improvement in cases where there was a chronic pneumothorax. This year I had two cases under observation. In one the pneumothorax had persisted for several months. This case, after the development of the pneumothorax, progressed badly, became decidedly worse, the patient lost flesh rapidly, etc. In the other case, operated on without benefit, except some relief from the dyspnea, there was no pus present until after the operation. Neither of these cases improved by the spontaneous recurrence of pneumothorax, which persisted for several months. In one case at the General Hospital, the local lesion was a very slight one indeed.

Dr. Vaughan referred to cases that were saturated with nitrate of silver. I think he has mistaken Dr. Mays' meaning entirely. In Dr. Mays' treatment the silver nitrate is injected to prevent irritation of the vagus, and so affect the innervation of the lung, that was the point. The case was certainly interesting and instructive. He stated, however, that the cases were practically well. I wish he would tell me what he means by practically well. We know perfectly well that a large number of cases of tuberculosis improve under any treatment instituted. We should remember to treat the patient and not the tuberculosis simply; each individual case requires special study; some cases require one thing and some cases another. There was one case in Buffalo where there was an excavation at the apex, with infiltration at the other apex and at the base, and that case recovered without any specific treatment beyond out-door life and guaiacol in moderate doses.

DR. S. SOLIS-COHEN, Philadelphia—My views on the causation of tuberculosis have been quoted. I have slightly modified them since that article was written. My present position is this: First, there is a fundamental trophic failure, congenital or acquired through privation, depression or excess. Then the invasion of Koch's bacillus—in rare instances another microbe, perhaps warranting a separate category for such cases—accompanied by definite histological changes and toxemia comparatively mild; then, with the invasion of pus organisms and similar microbes, a breaking down of tissue and a severe toxemia, with the phenomena properly called phthisis. As the trophic failure is fundamental in pathology it gives the clue to fundamental treatment. The patient's nutrition must be improved to the highest possible point. Rest may be necessary in some cases, and usually is when there is tendency to persistent elevation of temperature to or beyond 100 F.; but even rest should be in the open air when possible. Out-door exercise in proper cases is of the greatest value. In this connection I may recall attention to a case of recovery which I reported at the meeting of THE AMERICAN MEDICAL ASSOCIATION at Newport, to illustrate the benefit of compressed air; that patient has remained well these thirteen years since that meeting, and keeps her health, I believe, by being out doors in all weathers. But I don't wish to go over the whole subject; I desire merely to speak of a few points omitted by others. One of these, and very important, is the early recognition of the tuberculous origin of indefinite attacks in young people and children. In many cases healed tuberculous lesions being found at autopsy, it is stated that there were no symptoms during life. It is possible that inquiry might elicit the fact that the patient, when a child, had had recurrent attacks with pronounced or vague chills, a sudden development of fever, and perhaps pectoral signs which were thought to be the symptoms of bronchitis or influenza or malaria or something else. I have seen many such patients, who will go free for months or years, when there will be a repetition of the same phenomena. They are not cases of influenza or malaria or typhoid fever, and while bronchitis or perhaps catarrhal pneumonia is manifest by physical signs, this is but a part of the morbid complexus. I am inclined to believe that these are cases of tuberculosis chiefly localized in the bronchial glands, and my experience indicates that some patients recover entirely and some later develop pulmonary tuberculosis. Regarding the diagnostic value of temperature, I lay particular stress on the rise which occurs between noon and 2 p.m. Often a temperature course, seemingly normal at all other periods, shows a dis-

tinct elevation during these hours. As a matter of convenience I select 1 p.m. for the first test. There is one exception; namely, patients who present an inverse temperature, i. e., higher in the morning than in the evening. The temperature of patients with tuberculosis is mostly affected by external surroundings. The heat of summer will sometimes send the temperature of such a one up one, two or three degrees.

In estimating the value of new methods of treatment reporting many recoveries, the element of time must be taken into consideration. Reports of recovery in six weeks may be thrown into the waste-basket; reports of patients remaining well six months need little attention; reports after one year or two years do not mean very much. I do not know just when to report cases of tuberculosis as well. I used to say four or five years was a sufficient time, but one patient reported well at four years died four years later of pulmonary tuberculosis. I have one patient now who has been well for seventeen years—my first case—treated by compressed air, iodoform, iron, raw-meat diet, etc. This I may report now to illustrate one line of treatment which has been successful in a certain proportion of cases.

Finally, I would ask members to read old books as well as new journals. Rush, in his classic on the treatment of consumption, calls attention to the value of rest and the value of regulated exercise in a way that impressed me greatly. He says: "I desire to call attention to the care with which exercise should be applied in cases of consumption in order that I may in some measure atone for the evil done by neglect of these precautions in my early practice."

Beginning with the slightest exercise, conformable to the ability of the patients and the stage of the disease, he advises that it should be gradually increased until they could be kept out of doors on horse-back. The stages were slow carriage-riding, faster carriage-riding, walking, running, horse-back. Sydenham, before this, had called attention to horse-back exercise as one of the best means of treating phthisis; while Beddoes, more than a hundred years ago, gave the hygienic regimen which is now so enthusiastically exploited by those "who only heard it yesterday."

DR. S. A. KNOPF, New York—I did not come here to speak, but simply to listen and learn. However, I gladly avail myself of the privilege to say a few words on the invitation of your honored Chairman. In listening to the many interesting papers on tuberculosis I have indeed learned much. The most important thing which the papers and discussions show is the advance we have made in phthisiotherapy, so that we no longer treat consumption, but the consumptive, and we no longer believe in a specific climate for pulmonary invalids. My time is too limited to discuss all the interesting points in the various papers presented here this afternoon.

To Dr. Freudenthal's experience with the sweatshop tailors as a class much exposed to consumption, let me add that I have observed two other classes of laborers also very frequently attacked by this disease, namely, assorters of dirty linen in laundries and Italian rag-sorters. I have not seen any statistics to confirm my observations, but it would be interesting to know the real extent of the disease among these classes of laborers. That I may not be misunderstood, I wish to say that I refer to the rag sorters who live and work often in the damp, dark, crowded basements of tenements, and not to the rag-pickers, who work all day outdoors and are much less exposed to tuberculosis.

Concerning exercise and rest-cure, I would say that both are valuable in the treatment of the disease in question, but that neither should be carried to excess. To have a patient lie for from five to ten hours on his back on a reclining-chair, with almost no interruption, as is sometimes practiced in German sanatoria, even if out-of-doors, I consider dangerous to the patient, for it may produce a pulmonary hypostatic congestion. The rest-cure is most valuable when alternated with short walks and breathing exercises, providing the patient has little or no fever. A temperature of 100 F. and over is an indication for quiet, and the less active exercise the patient gets the better. When the fever has become chronic gentle massage is well indicated, thus counteracting the disadvantages of a too-prolonged rest.

Dr. Mays' paper was certainly very interesting, but I fear we can not get the full value of his statistics as long as he does not tell us which of his patients had and which did not have the hygienic and dietetic treatment in addition to the nitrate of silver injections. We must admit that some patients' coughs improve and some get entirely well without any medicinal treatment. It may be interesting to recall in connection with this that Landouzy, of Paris, injects sterilized water into the supraclavicular region as cough remedy, and reports good success. My own favorite remedy for cough without expectoration is discipline. I tell the patient, in the language of my venerable teacher, Professor Dettweiler, that to cough in public simply because the throat tickles is impolite, like scratching the head in the presence of others when it itches; also that useless coughing only irritates the throat. At times I employ dry cupping to relieve cough and pleuritic pains. Of course, there are cases where the cough becomes distressing and where expectorants are necessary.

Before closing, may I come back to the cause of consumption among the toilers? Whatever we may do in the line of therapy or prevention by the sanatorium treatment, of which I am glad to say such favorable mention has been made by Dr. Rochester, let me tell you that as long as the law will permit tenements to exist, or to be constructed, which, owing to the lack of air and light and want of cleanliness constitute veritable hotbeds of tuberculosis, so long will sanatoria and special hospitals serve only as recipients of the supply of tuberculous patients daily created anew.

Before you leave this meeting let me beseech you to do your duty as physicians and citizens. You have a right to demand from your municipal government that the poor shall be better housed and shall no longer constitute a danger to their fellowmen. You have a right to demand that the hopeless, poor consumptive shall be isolated in a special hospital and the curable treated in a sanatorium near by. There is hardly a region in the United States where the climate would not permit a consumptive to be cured by the hygienic and dietetic treatment under careful medical supervision. It is no longer necessary to send our patients thousands of miles away. In our combat against this bitter foe of mankind we must not forget that consumption must be treated as much in its social as in its medical aspect.

DR. R. C. NEWTON, Montclair, N. J.—I wish to relate a case which has proved interesting to me, and I think supplements some of the remarks just made. About two months ago a young lady, of 19 or 20 years, was referred to me with the following history: She had suffered from loss of vigor and from depression of spirits for some months; during this period her menses had been entirely absent. She had lost flesh and had shown an afternoon temperature of 101 to 102 F. The temperature had been taken at variable intervals. But I have no doubt that she had experienced a daily rise during at least a considerable portion of the time mentioned. She had not suffered markedly from anorexia or constipation. Her elder sister hinted vaguely at some love affair, which might have affected her health.

When I first saw her she was pallid, had some acne and complained of being listless and tired. Her family history was strongly tuberculous, so far as her grandparents, uncles and aunts were concerned. The history of her immediate family is very good. She complained of more or less dry cough every morning, but no expectoration. A careful swabbing of her throat produced a little mucus, which was examined in vain for tubercle bacilli. The blood was examined microscopically and showed some leucocytosis, the polymorphonuclear leucocytes being well marked. The red cells were comparatively healthy, showing only a few endoglobular changes. There were no malarial plasmodia. A careful auscultation and percussion of the chest seemed to reveal slight congestion at the right apex; so a tentative diagnosis of incipient phthisis pulmonalis was made. I referred the patient to Dr. James, of New York City, for further examination and for advice as to whether she

should be sent to the Adirondack Sanatorium or not. Dr. James was disposed to regard the case as purely one of anemia and recommended large doses of tartrate of iron and potash, the patient to be carefully watched and her progress noted.

How this case may turn out is, of course, too early to assert. But there seems to be little doubt that a moderate diurnal fever may arise in chlorotic young girls from nutritional or metabolic irregularities and may subside without sequelæ, and very probably without treatment.

DR. C. P. AMBLER, Asheville, N. C.—Dr. Rochester is laboring under the impression that I am connected with a sanatorium in Asheville, and have read this paper as a report from such institution. Allow me to state that I have no connection with the sanatorium, and that these patients reported were not treated in a sanatorium. He probably has this impression from the fact that I was formerly connected with an institution in Asheville, but my connection with that institution was severed four years ago. Dr. Rochester has also stated that I make it appear that patients do not recover under creosote treatment. I did not say that. I stated that "where patients recovered under serotherapy they were not so liable to relapse as those treated by creosote and other allied drugs."

Dr. Knopf, in discussing my paper, has implied that I claim the results obtained were due entirely to medication. I distinctly stated that medication occupied third place. First, comes the hygienic supervision of the patient; second, good climate; third, medication. If all three of these methods can not be applied in a case, then the best thing the patient can do is to drop his doctor first, climate next, but under every circumstance hygienic supervision of the patient is absolutely necessary.

I am not here posing as a serum champion. I presented this report simply as a supplement to the report of the 106 cases presented last year, at which time my paper on sero-medication was read. I have shown that now, after the lapse of two years, 31 of the 106 cases were all back at their former employment.

DR. THOMAS J. MAYS, Philadelphia—I think it is of great importance that we look on a new therapeutic question with leniency, for under the most favorable circumstances it is difficult to establish the correctness of any theory, and nowhere does this obtain more firmly than in the field of therapeutics, where the factors on which the theory is founded are so inconstant and variable. Some of the objections raised by Dr. Vaughan are that nitrate of silver may produce argyria, and be provocative of phthisis. I do not believe, however, that the small doses of 1/10 or 1/4 grain given once a week have the least perceptible general effect on the patient, and if my recollection serves me right, it appears that much larger doses of this drug are required to be given continually and for a long time before the symptoms of argyria are produced. Nitrate of silver is frequently given in daily grain doses for months in intestinal diseases without deleterious effect. That nitrate of silver may predispose to phthisis I believe, but the same may be said of lead, mercury, arsenic and other drugs. This is only true, however, when administered in large and toxic doses, and for long periods, as happens in the arts and manufactures. Indeed, I believe that anything which disintegrates, or diminishes the integrity of, the nervous system, as the above-named agents do in maximum doses, will predispose to pulmonary consumption. In small doses they stimulate, while in large doses they intoxicate.

Dr. Rochester asks me to define the meaning of patients getting practically well. This is a hard question to answer. Precisely, I believe that no tuberculous or phthisical patient will be entirely free and secure from the development of the disease if he lives a thousand years. The same may be said of many of us who carry inherited burden of this disease in our bodies and who, under prolonged physical or mental oppression, show a proclivity to the disease by the symptoms of a light cough, loss of flesh, impairment of appetite, etc. Therefore, I believe that a person who has been subject to this disease and recovers is never free absolutely from a subsequent outbreak, although he may be said to be practically well, especially if he is capable of performing work for six months, a year, or longer, provided he maintains his appetite, flesh, etc. The same is, however, also true of perhaps all chronic diseases.

Dr. Cohen referred to healed lesions of early tuberculosis usually occurring in children. I think it is true in many instances that children show a proclivity toward cure. I think they make quicker recovery than adults. I think in the "Medical and Surgical History of the War of the Rebellion" many cases of healed cavities and cicatrized phthisical lesions were noted in the lungs of soldiers who had died of other causes than phthisis.

DR. A. F. LEMKE, Chicago—I have but a few words to say in closing. In reference to the remarks of Dr. Rochester, I would say that I think every one is aware of the fact that a great majority of cases which develop pneumothorax in connection with tuberculosis result fatally; I believe that I am perfectly safe in saying that 90 per cent. or more of these cases of pneumothorax result fatally. There are two reasons: 1. On account of the valve-like formation at the point of rupture, so much air is forced into the pleural cavity that the patient dies of shock. 2. A more or less virulent infection of the pleura. Dr. Rochester states that in his case there was no pus, but this does not indicate that there was no infection.

It seems to me that the only practical way of getting at the question of the treatment of tuberculosis—not including prophylaxis—and the only rational way, is to consider how tuberculosis heals in a natural way. The great majority of lesions of tuberculosis, particularly those occurring in the lungs, heal by the process of cicatrization. In my synopsis, with which you are supplied, I have made a note regarding the statistics referring to the curability of tuberculosis. Every one is aware that Harris, of England, reported that 38 per cent. of individuals who died of causes other than tuberculosis showed healed tuberculous lesions in the lungs.

Fibrosis is the all-important factor in the healing of tuberculosis of the lungs. That compression will favor fibrosis can no longer be disputed. Furthermore, the danger from tuberculosis lies in the dissemination of the disease throughout the lungs. There are certain well-organized avenues by which this dissemination takes place, and these avenues are the air-channels, the lymph-vessels, and the blood-vessels. When compression takes place it occludes the avenues of dissemination of the virus and limits the disease to the parts originally infected. In that way the process of fibrosis circumscribes and permeates the original focus, which is transformed into a scar, and these scars are simply masses of fibrous tissue, or scars enclosing calcareous or caseous material. Our work, which has been carried on extensively for two years, has convinced me that pulmonary compression has an important place in the treatment of tuberculosis and that is based on unimpeachable clinical and pathological evidence.

ANGINA EPIGLOTTIDEA ANTERIOR.

REPORT OF THREE CASES.*

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The name "angina epiglottidea anterior" was given to this interesting condition by Michel, in 1878. It is an inflammatory process involving the anterior surface of the epiglottis, as a rule confined to it, and accompanied by more or less edema, which is the characteristic feature of this affection. The larynx itself may be affected to a certain extent.

True angina epiglottidea anterior occurs quite often as a primary affection, and is a separate and distinct condition. This statement will, I think, be proved by

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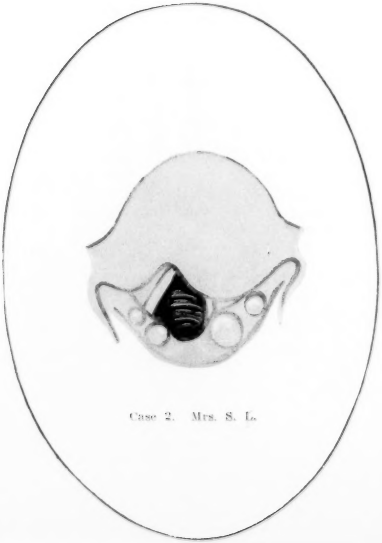
Case 1. Mr. W. B.



Case 2. Mrs. S. L.

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the report of the following cases. An inflammation of the anterior surface of the epiglottis, of course, sometimes follows an acute inflammation of the tonsils, acute pharyngitis and affections of the lingual tonsil. But in these cases the epiglottitis is merely a part of a general acute inflammation of the fauces, and must be distinguished from the primary or idiopathic epiglottitis. It must also be distinguished from a series of cases described by Arnold—30—in Burnett's "System of Diseases of the Nose, Throat and Ear," to which the term "acute miasmatic epiglottitis" was given. This will be fully considered after the report of cases.

CASE 1.—Mr. W. B., aged 36. Was called to see him on the second day of his illness. He had been perfectly well before present attack, and in fact had always enjoyed the best possible health. His physician had carefully examined his pharynx, but could find nothing to explain the symptoms. When seen by the writer, the patient was sitting in a chair, with an anxious countenance, and presented the appearance of being quite ill. He complained of a very severe sharp sticking pain about the base of the tongue when he attempted to swallow. Attempts to swallow even a few drops of water brought on severe attacks of choking and coughing; there was pain on attempting to move the tongue; severe headache, restlessness, no appetite; voice was clear and there was no particular difficulty in breathing. The nose, nasopharynx and pharynx presented a normal appearance. The pharyngeal mucous membrane was not reddened. When the larynx was examined, however, the cause of the trouble was at once apparent. The anterior surface of the epiglottis was intensely inflamed, of a uniform bright-red color, and edematous. (See illustration, Case 1.) The larynx itself was not involved. Temperature 101 F., pulse 110. The patient was given an iced ichthyol spray, .5 per cent. solution, which was used every 20 minutes, and an ice pack was applied around the neck. Cracked ice was also frequently dissolved on the tongue. The next day his condition had considerably improved, although there was still pain and difficulty in swallowing. The inflammation of the anterior surface of epiglottis had subsided considerably and he felt better generally. The iced ichthyol spray was continued at half-hour intervals during the day, and was used at longer intervals as the acute inflammation subsided. On the fifth day he was practically well, although the redness and swelling of the epiglottis did not entirely disappear for several days more. A culture was not taken from the epiglottis in this case. He had not inhaled any irritating vapors, nor had he been exposed to cold.

CASE 2.—Mrs. S. L., aged 40. Attack came on very suddenly, patient being in the best general health. She had not been exposed in any way and had not had a cold. Did not have a sore throat or even coryza before attack came on. First saw the patient morning of Jan. 4, 1900. Night before had been very restless and feverish, with headache, and great pain and choking when she attempted to swallow. She had also experienced much difficulty in breathing when lying down, and had to sit up in bed. On examination, nose and nasopharynx were normal and there was no evidence of any pharyngeal trouble. Mucous membrane of posterior wall, tonsils and faucial pillars was not reddened. Anterior surface of epiglottis was much reddened and so edematous that the laryngeal entrance was partly closed. Vocal cords were very slightly reddened and there was some swelling of the left aryepiglottic fold. (See illustration, Case 2.) Temperature 102 F., pulse 120. Calomel was given, and an iced ichthyol spray, .5 per cent. solution was used every 20 minutes, with an ice pack around the neck. Patient was also told to dissolve ice on the tongue frequently. Later in the day, as breathing was not much easier, I scarified freely, which gave her some relief. Next day patient was somewhat better and had not suffered as much during the night. Temperature 101.5. Epiglottis much less edematous and not as red. The laryngeal surface of the epiglottis was not swollen. The iced ichthyol spray was continued—every half-hour during the day—and, as in Case 1, at longer intervals for several succeeding days. She had been able to take absolutely no nourishment the first two days, but on the third could take some milk, as the difficulty in swallowing was much less. Epiglottis still very red, but edema both of that and left aryepiglottic fold had practically subsided. Temperature 101 F. third day. Her condition improved from day to day and in a week she was feeling almost as fell as ever, although the epiglottis did not get back to the normal condition for several days more. Immediately after scarification, cultures were taken from the epiglottis and examined by Dr. A. W. Elting, of the Bender Laboratory. The cultures showed a mixed infection of the staphylococcus albus and the pneumococcus. In the one culture the pneumococcus predominated. Examinations of the urine and heart were negative in this case. Patient had had no infectious diseases of any kind previous to her attack, nor had she ever had malaria. Injuries to the throat and the inhalation of irritating vapors could also be excluded as possible etiologic factors.

CASE 3.—I am indebted for the following preliminary history of this case to Dr. MacFarlane, of Albany, by whom I was called in to examine the patient's throat. "Mr. D. F., aged 59, widower. Iron-worker; born in England. Has always been perfectly well except for injuries received in his work. About three weeks before present attack, had a general cold with muscular pains and headache. On May 11, 1900, he seemed perfectly well except for some slight pain in the back of the head. This became worse, and late in the night seemed to be more in the throat—left side. Tongue appeared to patient to be swollen and hard, and could be only slightly protruded. The jaws could not be fully separated and there was a marked sensation of choking, although at this time patient was able to swallow. Absolutely nothing abnormal was seen by ordinary pharyngeal examination. May 12. Throat more sore. Speech natural and voice clear. Tongue could not be well protruded. Temperature 102, pulse 96."

On May 13, the author was sent for. Patient's condition quite serious. Had been unable to sleep the night before and complained of severe pain around base of tongue. He could swallow absolutely nothing, as even the attempt to swallow a few drops of water brought on the most violent paroxsyms of choking and coughing. Temperature, 102. On inspection of the throat, the nasopharynx and pharynx were found to be absolutely normal. There was not the slightest evidence of inflammation. When laryngoscope was used, however, the epiglottis was seen to be enormously swollen and of a uniform redness. The left aryepiglottic fold was somewhat edematous with also some swelling of the right. An iced ichthyol spray .5 per cent solution, was used every 20 minutes, and an ice pack round the neck. Calomel and salines had also been administered.

May 14. Patient not much better. Pain in throat somewhat better but could still not swallow anything. Epiglottis was scarified, some of the serous effusion from the deeper tissues obtained, and four cultures taken.

May 15. Patient had had much better night and could begin to take a little cold milk. Edema of epiglottis much less. Temperature 101. The iced spray was continued at longer intervals. His condition improved from day to day and on May 18, a week after the onset of the attack, the epiglottis was not longer edematous, but still reddened and slightly thickened. The cervical lymphatic glands on both sides of the neck as well as the submaxillary glands had become swollen quite suddenly, and were tender to the touch. He made a good recovery, but had rather a slow convalescence. The cultures were examined by Dr. George Blumer, of the Bender Laboratory, and showed a mixed infection of the streptococcus aureus and pneumococcus. There were numerous colonies, and about an equal number of both organisms.

Etiology.—In considering the etiology of this rare affection, several important facts must first be mentioned, It must be remembered that one of the main reasons why an edematous condition of the anterior surface

of the epiglottis does not involve the larynx itself, is, that the anatomical structure of the parts makes an extension of the edematous process very improbable. In other words it depends on the nature of the submucous cellular tissue. Hayek,[23] by his valuable experiments, has beautifully demonstrated this. The submucosa of the interior surface is abundant and the mucosa not tightly adherent, while on the laryngeal surface the mucous membrane is tightly adherent to the cartilage, and, with the exception of in the region of the nodulus, there is no loose submucous tissue. Hence, in cases of true angina epiglottidea, only the anterior surface of the epiglottis is involved. But, although the edema is usually limited strictly to the anterior surface, it may extend, when the edema is very great, by way of the thin submucous tissue of the pharyngo-epiglottic ligament, to the aryepiglottic folds. In mild cases, however, the pharyngo-epiglottic ligament is an effectual barrier, separating posteriorly, the cellular tissue of the epiglottis from that of the sinus pyriformis and aryepiglottic fold, and, as a rule, preventing the extension of the edema from the anterior surface. The laryngeal surface is not involved in cases of pure unmixed epiglottidea anterior; so that cases of acute miasmatic epiglottitis—as the six described by Arnold—must not be confused with the condition under discussion. Their etiology is also different. These cases are probably due to some vegetable or chemical poison present in the exhalations of marshes. This was so in Arnold's cases. In all his patients, young male adults, the attack came on after they had been punting for ducks on mud flats off the California coast. In all there was severe inflammation of the epiglottis—anterior surface—but swelling of the laryngeal surface as well, and in one, glottis edema was a complication necessitating tracheotomy. In one case too, there was edema of the uvula. For the sake of convenience in considering the etiology, angina epiglottidea anterior will be spoken of as acute epiglottitis or simply epiglottitis, which are really very good names for it, because, as before mentioned, an inflammatory process beginning on the anterior surface of the epiglottis, can not easily be accounted anything but a case of angina epiglottidea anterior, on account of the anatomical reasons already given. There is, of course, no doubt that an acute edematous epiglottitis may be secondary to inflammation of the tonsils, anterior faucial pillars or inflammation of the lingual tonsil.

Injury to the lingual tonsil or epiglottis itself, caused by swallowing any sharp or irritating substances or the inhalation of pungent chemical vapors, might also cause it. The swallowing of raw spirits, or very hot or sharply spiced drinks, or exposure to cold are also causes to be thought of. It is also a possible complication of Ludwig's angina or Massei's "acute infectious follicular glossitis." It may be part of a general edema of the fauces resulting from large doses of potassium iodid—as in several cases observed by the author. It may occur during the course of certain infectious diseases, such as measles, variola, scarlet fever, erysipelas, septicemia, pyemia, etc. Malaria might also be an etiologic factor. It may occur very suddenly with perichondritis, carcinoma or ulcerative processes due to syphilis and tuberculosis. Angioneurotic edema need not be considered, as the symptoms of acute epiglottitis are those of an acute infectious disorder, and fever is a constant symptom. In order to consider the etiology of primary epiglottitis, it will be necessary to review briefly the cases reported by different writers. In the opinion of the author, anterior epiglottitis is very often primary, and is an acute infectious process. A study of the following cases—which are nearly all the authentic cases on record—including the author's cases as well, will show that this must have been the case in the majority of the reported cases, although in most of them, there was no mention of a bacteriological examination. First, however, an error must be corrected. Meyjes,[24] who has reported an interesting case, makes the statement that Michel, of Cologne, was the first to report cases of this kind. He was probably the first to give the affection its present name, "angina epiglottidea anterior," but his cases are certainly not the first on record. Marsh[4] reported three cases of acute inflammation of the epiglottis in which the inflammation was undoubtedly confined to its lingual surface, and although he did not give it the name under which we describe the condition to-day, he nevertheless gave a most admirable description, which in all essential details, corresponds almost exactly with the disease as we recognize it. In his cases the attacks came on suddenly. Pharynx in all was entirely normal, while the epiglottis was greatly reddened and edematous. The epiglottis could be easily seen in the one case when the tongue was depressed. Patients were feverish. His accurate description and recognition of the condition are all the more remarkable when we consider that it was long before laryngology became an exact science. Long before this, however, in 1791, Mainwaring[1] described a case which is one of the first on record. A man, 40 years old, after exposure, was suddenly attacked at night with violent pain in the throat and complete inability to swallow. The pharynx was entirely normal. The epiglottis was greatly swollen and edematous.

Three cases were reported by Sir Everhard Home[2] in 1808. These cases too came on suddenly. The epiglottis was greatly swollen, while the tonsils and surrounding parts were practically normal. Burne's[3] two cases were probably also of the same nature, one having a fatal ending. The pharynx was unaffected. Kesteven[7] reported two cases of epiglottitis, in 1849, and claimed that the disease was not met with except in connection with, or as a result of, inflammation of the fauces, tonsils or larynx. One case has been reported by Windsor[11] and four by Larsen.[8] Three of Larsen's cases were acute and one chronic. Two of the acute cases were primary and the chronic case was of syphilitic origin. This subject has also been alluded to by Wunderlich[9]—1856. A case that had a sudden and fatal termination has been reported by Tomkins[5]—1841. After death, the epiglottis was found to be greatly swollen. Other cases have been reported by Louis,[6] and Gibbs.[10] Another case that ended in death has been reported by Crisp.[12] A boy, 8 years old, after having been ill three or four days, died suddenly, apparently of suffocation. The autopsy revealed a swelling of the epiglottis, which was also very red. No other lesion was discernible in any part. Peculiarities of this case were the sudden invasion of the symptoms and the circumscribed form of the inflammation, which was confined to the epiglottis. Author considered death to be due to spasm of the glottis. No irritant had been taken. Fredet[16] has reported the case of a young man of 20. He returned home one night after a debauch and suddenly developed great difficulty in breathing. Symptoms rapidly increased in severity and suffocation ensued in a short time. Autopsy showed great edema of the epiglottis and aryepiglottic folds. When superior part of epiglottis was cut into, a large amount of

pus was evacuated. There was no fracture nor necrosis of the cartilage. The suppurative epiglottitis was primary, followed by the edema, and glottis edema that caused death. Now, when we come to the more recently reported cases we find also a great similarity in nearly all, in the rapid development of the symptoms, and the almost constant presence of fever. This was particularly the case in the second one, that of a medical man, aged 38, reported by Milligan.[35] This case was considered to be of septic origin, as the drains in his house were in bad condition. The inflammation of the anterior surface of the epiglottis was probably not primary in Milligan's two cases, as in both the faucial pillars were congested, which is not typical of acute anterior epiglottitis.

In Meyjes' case the anterior surface of the epiglottis was greatly swollen and there was some redness of the right palatine arch. This case is a very good example of the disease. Michel[14] did not find the pharynx particularly affected in the six cases reported by him. Two of his cases were associated with swelling of the aryepiglottic folds; in one there was inflammation of a vocal cord, and two were complicated with Ludwig's angina. Moll[19] has reported a characteristic case in which there was redness and swelling of the anterior surface of the epiglottis, dysphagia and fever. Pel[13] has called attention to the condition, and also Wesseler.[14] Ruault[20] has recognized the existence of a primary circumscribed edema of the epiglottis. In some cases observed by Gottstein[22] no distinct cause could be ascertained. He questions whether edema of the anterior surface of the epiglottis is ever primary. Schmidt was[31] and still is[32] of the opinion that it is practically always secondary to injury or inflammation of the lingual tonsil. Kyle[26] states that "acute epiglottitis is not a separate condition." Störk,[18] on the other hand, twenty years ago recognized the fact that an "idiopathic epiglottitis" does occur under certain conditions. It is surprising that most of the prominent text-books on the nose and throat do not mention this at all or settle the entire question of the etiology of epiglottitis with a few lines to the effect that it is very rarely if ever primary. Browne[33] makes no mention of angina epiglottidea anterior as a separate condition, but believes that acute edematous laryngitis is quite frequently primary. As acute epiglottitis must be considered as perhaps a form of laryngeal edema, and has some of the same etiologic factors, there is no reason why it may not very often occur as a primary condition. Moure[15] too has mentioned the occurrence of primary edema. Out of 6062 autopsies held at the Charité, Berlin, 33 cases of edema of the larynx were found, 10 of which were primary. Bayliss[29] gives particular importance to malaria as an etiological factor in acute edema. Kuttner,[26] Semon and Hajek have done much to clear up the vexed question of the etiology of laryngeal edema in general, although both Kuttner and Semon are of the opinion that edema should not always be classified as a distinct condition.

Semon[27] claims that many of these conditions that have been classified in the past as separate and distinct pathological conditions, have a pathological identity. I certainly believe that the whole chapter of laryngeal edema will have to be rewritten some day. To dwell again briefly on my own three cases, we find that in each the attack came on very suddenly, with fairly high temperature, and symptoms of an acute infectious process. This is the evidence we gather too from the other cases that have already been discussed. While this is a most important point it still does not clear up the etiology, as in most of the later cases no mention was made of bacteriological examinations. And while it is true that in a very careful search of the literature absolutely nothing was found about the bacteriology, I believe that the cultures taken in two of my cases will help to clear up the etiology. We found that the result of the culture examinations was a mixed infection in both cases. In the one a staphylococcus and pneumococcus, and in the other a streptococcus and pneumococcus infection. It will be said at once that this does not prove anything, that all these organisms, particularly the pneumococcus, are found in the mouth quite frequently, both under normal conditions, according to Park,[24] who has often found the streptococcus, and also in cases of simple angina—Veillou.[25] This is, of course, well known, but one important fact must not be overlooked: The cultures taken in cases of simple acute angina, in which the streptococcus is nearly always found, are from surface swabbings. The swab is usually simply brushed over the surface of the mucous membrane. In my own cases, the cultures were taken immediately after scarifications—after the infiltrated submucosa had been cut into—and some of the serous effusion obtained from the deeper tissues. Then, too, the colonies were very numerous, and there were large numbers of the organisms. This gives the question quite a different aspect, and so far as these cases are concerned, they must be regarded as examples of "acute primary infectious epiglottitis." This is a reasonable deduction, and from a study of some of the other recorded cases, I believe we may come to the conclusion, with a fair degree of certainty, that the majority of them were also cases of the same nature, that is, acute infectious epiglottitis. It is, of course, a question, in the writer's cases, as to which organism was mainly responsible for the edema. It is known that the pneumococcus, when some of the lower animals are inoculated with it, will sometimes produce local edema. Welch,[37] in his interesting article on the "micrococcus lanceolatus," has brought this out. He quotes Foa, who distinguished a special variety of this organism. His pneumococcus he called diplococcus lanceolatus of the edematogenic variety. This edematogenic variety of the pneumococcus often produces, after subcutaneous inoculation in the subcutaneous tissue of some of the lower animals, widely spreading or local edema. Welch has also obtained cultures, which when injected subcutaneously, produced uniformly extensive local subcutaneous edema. So it is quite possible that in the two cases, the pneumococcus had something to do with the production of the edema. At any rate, it is quite clear that the edema was an acute infectious one, and that it was primary. In a case of primary edema of the epiglottis and larynx, reported by Levy and Laurens,[28] the edema was also considered to be of an infectious nature.

Diagnosis.—The diagnosis has been sufficiently discussed in considering the etiology, so that it need only be said that the condition can not be well mistaken for anything else. The uniform redness and swelling of the anterior surface of the epiglottis is quite characteristic. The author would enter a most earnest plea for the employment of the laryngoscope in all cases where patients complain of severe pain in the throat and inability to swallow, with a normal pharynx. It is, of course, not necessary to say this to a society of throat specialists, and it is only meant for the general practitioner. If the affection is not recognized early the

patient's condition may become very grave and serious complications arise.

Treatment.—The treatment has been largely considered in the report of my cases. I would emphasize, however, the value of early scarifications. I thoroughly agree with Meyjes, in regard to the value of an iced ichthyol spray. It certainly relieves the acute pain and reduces the inflammation very promptly. If for any reason ice, or iced sprays can not be used, steam inhalations—medicated—would be of service.

CONCLUSIONS.

1. Angina epiglottidea anterior is very often primary and is an acute infectious process.

2. The term "acute infectious epiglottitis" is suggested for this condition as being more scientific, and more fully explaining its probable nature. It is, of course, understood that the inflammation and edema involve only the anterior surface of the epiglottis.

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DISCUSSION.

DR. EMIL MAYER, New York City—I believe these conditions are really not so rare. I have seen cases and have scarified them with satisfactory results. They probably occur much more frequently than the presentation the Doctor has made would indicate.

DR. E. T. DICKERMAN, Chicago—I remember two cases that may be of some interest in this connection, in which the inflammation, swelling and edema were limited to the anterior surface of the epiglottis. Both cases occurred in men who had been on prolonged sprees. It seemed to me that the edema was due entirely to the retention of imbibed liquids.

DR. JOHN F. CULP, Harrisburg, Pa.—I am inclined to think that these cases, as Dr. Mayer says, are not very infrequent. Two years ago, while working in the Vienna Polyclinic, I had a case referred to me. The man had been drinking and I found an inflammation of the epiglottis, with much edema of the anterior surface. I made an attempt to use scarification, but, probably due to my own unskilfulness, I was not successful, and I made an application of a 3 per cent. solution of nitrate of silver, brushing over the epiglottis very lightly. Knowing the prevalence of syphilis in these clinics, I thought I would give him potassium iodid. I prescribed 30 grains, three times a day, and advised that ice should be taken into the mouth as often as possible. I know he took the potassium iodid. Three days afterward he came back; he was still pretty drunk, but the inflammation of the epiglottis had almost disappeared.

DR. JOHN N. MACKENZIE, Baltimore—I do not see how these cases differ from ordinary edema of the larynx. The causes of this condition we all know are as multitudinous as the stars. The result of the microscopical examination will depend entirely on the primary cause of infection and will differ very greatly according to that cause. This edematous condition of the epiglottis has been familiar almost in all times. The writers, long prior to the discovery of the laryngoscope, described hydatids of the larynx, especially affecting the epiglottis, and these hydatid formations, so-called hydatid tumors of the larynx, have been shown to be nothing but cases of edema of the epiglottis. Edema is very common in this situation on account of the loose anatomical structure of the parts. These growths attracted the attention chiefly of the writers of the early part of the century in France. Since that time the literature has been enormous. I think, with one of the speakers, that the cases are often due to too much whisky; the conditions are such then as to readily produce edema of the larynx. A famous case of which we all know is that of Washington.

DR. CORWIN—I wish to call attention to a case in which edema limited, so far as the larynx goes, to the anterior face of the epiglottis, occurred very recently in my practice. There was pharyngitis and stomatitis, and the condition was attended with considerable fever. There was some difficulty in speaking, owing to the swollen condition of the tongue. But the prominent condition which the patient complained of, and which I think was referable to the condition of the epiglottis, was that he was unable to swallow any food or liquid practically for several days. This might be interesting in connection with the subject presented.

DR. JOHN O. ROE, Rochester, N. Y.—As Dr. Mackenzie has clearly stated edema of the epiglottis may arise from an infinite variety of causes. A number of cases have come under my observation. In some that I recall, the condition followed the excessive use of alcohol, in some cases it was associated with diabetes, and in others it followed directly on acute inflammation of the fauces, caused by taking cold. I have observed it in many cases in conjunction with inflammation of the lingual tonsil. Many cases of edema of the epiglottis doubtless occur unobserved, and on careful examination of the epiglottis we will find some edema of the epiglottis in many cases of quinsy. We often have a follicular inflammation of the lingual tonsil at the same time that we have a follicular inflammation of the faucial tonsil, and the reason why it may be considered an infectious trouble is because of the readiness with which the tonsils form a feeding-ground or place for germs to propagate. If a bacteriological examination were made in the majority of these cases, I have no doubt we would find it a germ infection. The diagnosis is readily made with the laryngoscope; but in many cases by depressing the tongue with a curved or Kirstein depressor the epiglottis is plainly seen. The treatment of this condition is that employed in cases of edema of the larynx of an infectious nature, with special reference to the specific cause of the infection.

DR. C. F. THEISEN—In closing the discussion I would say

that I am sorry most of the gentlemen seem to have missed one of the main points in my paper. They have been discussing general laryngeal edema and secondary epiglottitis, which is often merely part of a general inflammation of the fauces. These are not identical conditions with the one I have attempted to describe. The point I intended to bring out in my paper was that the cases I have reported were those of acute primary epiglottitis or angina epiglottidea anterior, with no involvement of the pharynx; that in secondary epiglottitis there is, as a rule, a general acute angina. Dr. Mackenzie said in his discussion that the "condition had been known almost for all time." This may be true to a certain extent, although, of course, an absolutely accurate diagnosis could not be made in these cases before the discovery of the laryngoscope. I did not make any particular claim for its rarity, although I will say again that primary epiglottitis is rare. A good many of the cases reported by the earlier French, German and English writers were probably cases of secondary epiglottitis, or of edematous laryngitis. Dr. Mackenzie also spoke of Washington's case. I did not mention it because it does not strictly belong in a paper with this title, and then, too, it has been a disputed point what Washington died of. At the time of his death the cause was given as quinsy, and this is mentioned by Henry Cabot Lodge in "American Statesmen." The consensus of opinion seems to be that his death was due to acute edematous laryngitis. This is mentioned by Marsh in his article, and also by Lodge.

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ATHREPSIA INFANTUM—MARASMUS, OR WASTING DISEASE—ATROPHY—MALASSIMILATION OF FOOD.

ITS CAUSE AND TREATMENT—PROPER INFANT-FEEDING.*

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If infants, when a few months old, suffer with vomiting or diarrhea, and this condition is allowed to become chronic, then colic and flatulence associated with constipation supervene, and result in a gastrointestinal catarrh. Neglect of this condition means the development of the condition known as athrepsia. The infant does not thrive, commences to waste, and unless we realize the condition and give the baby proper treatment, such a child will die of exhaustion from inanition. When these cases linger for months they develop rhachitis. Recovery without treatment is impossible. Parrott was the first to define this disease, and classified it into three stages:

1. The infant suffers from a simple diarrhea or looseness of the bowels. The stools, instead of being bright yellow and homogeneous, are liquid, curdy, often of a green color, and contain an excessive quantity of mucus. The abdomen is distended with gas and remains constantly in this condition; the tongue is coated and the patches of a stomatitis appear in the mouth. The infant is restless, constantly whining, and will not sleep at night. The milk being retained, curdles; the tissues become flabby, and wasting commences.

2. The symptoms are intensified and the characteristic wasting becomes manifest. The stools for the most part are loose and frequent, and consist of undigested food; they are often pale and putty-like, with a peculiar odor. At other times they are of a dark brown, from the presence of altered bile. The infant is most voracious, liquid food does not seem to satisfy it, and by the mistaken kindness of its friends it is fed with some thick food, like soft bread, a diet which has the great advantage in their eyes of keeping it quiet for a longer time than liquid food or diluted milk. At times it can hardly be made to sleep, or only dozes for a short time, unless under the influence of a soothing-syrup applied by its nurse. The mouth becomes the seat of a parasitic stomatitis; the skin is harsh and dry; small boils or a lichenous rash makes its appearance. The buttocks and genitals are raw and excoriated. Its temperature is below normal; the feet and hands are congested, the face has a pallid, earthy tint, and a sickly lactic-acid smell is given out from the body, especially the abdomen. The wasting is extreme, the face being shriveled, the skin wrinkled and hanging in folds about the thighs and arms.

3. The third stage brings the child into a moribund state. It is too feeble to cry, becomes heavy and drowsy, taking little notice of anything. Death then ensues, probably preceded by a muscular twitching, strabismus or general . . .

Henoch does not like the term "athrepsia," introduced by Parrott, but prefers "atrophy." The first symptom that this author noticed is that the child's weight does not increase, and hence he emphasizes the importance of frequently weighing children. He regards the weight taken once a week as sufficient, so that it can be a determining factor as to the progress made by an infant. Henoch says that at the end of the first month the weight is increased one-third, at the end of the fifth month it is double, and at the end of the twelfth month it should be three times the weight at birth. Weaning, dentition and all other pathological conditions interfere with a proper increase in weight.

By far the greatest number of cases of athrepsia are found in bottle-fed children. There are, however, a great many cases to be seen among breast-fed children. We can then be positive that the breast milk is lacking in some of its chemical constituents, and frequently we find that it is the proteids that are deficient in quantity. If, therefore, we meet with a case of athrepsia in a breast-fed child the thing to do is to have a chemical examination made of the breast milk. If the latter is found deficient in quality, then we must withdraw it.

A great many children will be found to thrive at once after having been removed from the breasts and changed to some artificial mode of feeding, whereas the reverse is also true. If, therefore, we wish to do away with its own mother's milk, for some positive reason, it is advisable to secure a wet nurse having a child as near the age of the one she is to suckle as possible. The hereditary history of a nurse is of great importance, as is also the quantity and quality of her milk, which should be thoroughly examined before she is given this foster child.

The treatment of this disease is one which resolves itself into removing the cause, and if bad hygienic surroundings, as impure air, crowded apartments and improper diet are the cause, then these must be remedied at once. Medication amounts to nothing in the treatment of this disease.

With hand-fed or bottle-fed children we can easily regulate the condition of their bowels and also easily regulate the quality and quantity of the food given them. The blandest and least irritating food must be selected, while frequent weighing of the infants should be resorted to in order to ascertain the progress that is being made.

Where there is much diarrhea, milk must be used sparingly or altogether omitted for a while, as the hard

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curds formed in the stomach are beyond the weak digestive powers of the weakened stomach and intestines. Small quantities of whey and barley-water, white of egg and barley-water, or the juice of a rare chop or steak may be given at short intervals during the day and night.

As soon as the child improves in respect to the diarrhea, milk in some form may be allowed. Peptonized milk is often of much value in these diseases when made by mixing three ounces of cold milk, adding two teaspoonfuls of cream, with one-half of a peptonizing powder to sweeten it, and giving it to the infant after it has stood for fifteen minutes.

The cream mixtures are often of much service, such as one ounce of cream, three ounces barley-water, one teaspoonful of sugar. Every care must be taken that the feeding-bottle is clean, and the food prepared with the most scrupulous neatness.

The great difference between cow's milk and human milk is the fact that human milk is persistently alkaline, whereas cow's milk is usually acid; that there is more nitrogenous material in cow's milk; that there is a much smaller percentage of milk-sugar in cow's milk, and finally, that the nitrogenous constituents of the milk of the cow are affected by rennet in a manner different from those of mother's milk.

In order, therefore, to feed cow's milk to infants, these differences must be corrected, and the correction of them causes further differences, which have in turn also to be corrected; the process, therefore, is a complicated one.

Before considering the means adopted to alter the chemical composition of cow's milk, it would be proper to state that there is a common but false belief that milk from one cow is the best for infants' use. The principle that underlies this belief is perfectly right. It is that it is desirable to obtain milk of uniform composition, but it has been found experimentally that milk of the same cow varies in its composition during twenty-four hours, and that it is in reality more likely that a mixture of the milk from several cows will show a more constant analytic result than that from one single animal. Jacobi and others have stated that the chances of infection from tuberculosis through the medium of milk can only be lessened by feeding from a large number of cows.

In order to render the character of cows' milk similar to that of human milk, it is necessary to reduce the amount of casein in cows' milk. This is usually done by treating the milk with water, thus diluting it; but sometimes lime-water is used, for the reason to be stated immediately.

Second, the proportion of fat in cows' milk is less than in human milk, and it has been still further reduced by dilution. Therefore, it is necessary to add to it fat in some form or other, and this is commonly done by adding cream.

Thirdly, sugar must be added to cows' milk in order to bring the lactose up to the proper level. It has been held by some that it is necessary to use milk-sugar for this purpose, but there seems to be little doubt that cane-sugar will serve the purpose quite well, or even better.

In the fourth place, according to Jacobi, it is necessary to prevent as far as possible the great coagulating effect that the ferment of the infants' gastric juice has on the casein of cows' milk, and this is satisfactorily accomplished by adding an alkali, such as lime-water, or some mucilaginous material, such as barley water. In this way the casein curd is rendered loose and flocculent and more like that of human milk.

Dr. Meigs, of Philadelphia, advises the preparation of the following mixture: Cream, 2 oz.; milk, 1 oz.; lime-water, 2 oz.; sugar-water, 3 oz.; the latter is made by dissolving about 2¼ oz. of milk-sugar in a pint of water.

Condensed cows' milk is simply cows' milk that has been evaporated to one-fourth of its volume and sterilized, nothing at all being added to it. Then again, there is a form in which the milk is not only condensed, but has also the addition made to it of about 50 per cent. of cane-sugar. When it is also borne in mind that the composition of condensed milk varies with the season of the year, great fluctuations must occur in its chemical constitution.

Condensed milk must also be diluted with water before it is fit for use, and this dilution may entirely disarrange the proportion of the component parts of the fluid. For this reason it is found that even where infants appear to thrive on condensed milk, their apparent good health is due to an excessive deposit of fat, and not to a sufficient supply of albuminoids; and they are in the long run more prone to disease than babies fed on the breast, or on cows' milk properly prepared.

The above remarks apply with less force to that variety of condensed milk which is made from sterilized fluid and then sweetened, but even this preparation requires for digestibility to be diluted some ten times, and this reduces its nutritive value to a dangerous degree.

At times we must resort to various methods of feeding, until we find the proper method upon which a baby will thrive, and so it is that we have: 1, humanized milk; 2, sterilized milk; 3, pasteurized milk; 4, peptonized milk.

1. Humanized milk is simply cows' milk diluted with a certain amount of whey and with some cream. It is prepared in the following way: A pint of milk is set aside in a cool place until the cream rises to the surface. This is skimmed off and kept, and to the milk remaining is added enough rennet to curdle it thoroughly. The whey is strained off from the curd and added with the cream, previously separated, to a pint of fresh cows' milk, and the mixture is known as humanized milk. It is distinctly more digestible than ordinary diluted milk, and often agrees well with young infants, being given without any further dilution, in quantities suitable to the age of the infant. It may be employed exclusively during the first three months of the infant's life, and after that age may be used in combination with some farinaceous food.

2. Sterilized milk is that in which all germs tending to decompose it have been destroyed by exposure to a boiling heat at a temperature of 212 F. for a short period of time, from 15 to 45 minutes. Fresh cows' milk always contains impurities received from the cow or the atmosphere or from the vessels in which it is contained, though much care may have been taken to maintain absolute cleanliness. The milk is usually exposed to the action of steam or in a boiling heat from 5 to 45 minutes, and will keep about 24 hours. A fresh bottle must always be opened for each meal; if anything is left in the bottle after the baby has finished, it must be thrown out.

3. Pasteurized milk is simply steamed at a temperature of 167 to 170, for about 30 minutes, in other words, it is really sterilized milk at a lower temperature.

4. Peptonized milk, the fourth substitute for ordin-

ary diluted milk, is as simple a preparation as sterilized milk. It consists of milk which has previously been partially digested by the addition of some preparation of a digestive ferment, among the best known of which are Benger's liquor pancreaticus, Fairchild's peptonizing powders, etc. The milk should be diluted to some extent before being peptonized; but it is not necessary to dilute to such an extent as has been recommended for ordinary cows' milk. Generally, even for an infant two or three days old, the addition of an even quantity of barley water will be sufficient, and when a baby is two or three months old, a dilution of two parts of milk, with one part of water, will be digested with comfort.

In France there is a law forbidding any one to give solid food of any kind to infants under a year without the written authority of a qualified medical man.

Jacobi says, whatever I have here brought forward, is certainly not to disparage the boiling of the milk; it is to prove the danger of relying on a single preventive when the causes of intestinal disorders are so many. It is true, however, that the large majority of the latter depends on causes which may be met by sterilization; but not by sterilization only; also by pasteurization, that is, heating the milk to 70 C., or 165 F., and keeping it at that uniform temperature for 30 minutes, a procedure which destroys the same germs that are killed by a more elevated temperature, without much change in flavor and taste.

One of the questions connected with the employment of sterilized or pasteurized milk is this, whether the milk to be used for a child ought to be prepared at home, or whether the supply may be procured from an establishment where large quantities of milk believed to become immutable by sterilization for an indefinite period, are kept for sale. In regard to this problem Flugge plainly expresses his regrets that "we have allowed ourselves to be guided by people who are neither hygienists nor physicians, but chemists, farmers or apothecaries, and whose actions have been based on three false beliefs. Of these the first is that boiling for three-quarters of an hour destroys germs; the second that whatever bacteria remain undestroyed are innocuous, and the third, that proliferating bacteria can always be recognized by symptoms of decomposition." Nothing is more erroneous. Soxhlet himself, the German originator of sterilization, knew at an early time, that the fermenting process is now and then but partially interrupted by boiling, that butyric acid may be found in place of lactic acid, that a strong evolution of gas may be caused after such boiling, and that such milk may give rise to flatulency. Aye, milk which happens to contain the resistent spores of bacteria becomes a better breeding-ground for them by the very elimination of lactic acid, and the longer such sterilized milk is preserved and offered for sale, the worse is its condition. It may be true that these conditions are not met with very frequently, but an occasional single death in a family caused by poisonous milk will be more than enough. Therefore, the daily home sterilization is by far preferable to the risky purchase from wholesale manufacturers who can not guarantee, because in the nature of things they can not know the condition of their wares.

Another alteration of a less dangerous character, but far from being desirable, is the separation of cream from sterilized milk which is preserved for sale. Renk[1] found it to take place to a slight extent during the very first weeks, but later to such a degree that 43.5 per cent. of all the cream contained in the milk was eliminated.

Sterilization has been claimed to be no unmixed boon, because of its changing the chemical constitution of milk. Still, the opinions on that subject vary to a great extent, the occurrence of changes being both asserted and denied by apparently competent judges. But what I have said a hundred times is still true and borne out by facts, viz. that no matter how beneficial boiling, or sterilization, or pasteurization may be, they can not transform cow's milk into woman's milk, and that it is a mistake to believe that the former, by mere sterilization, is a full substitute for the latter. It is true, that when we can not have woman's milk we can not do without cow's milk. There is no alleged substitute that can be had with equal facility or in sufficient quantity. But after all it is not woman's milk. Babies may not succumb from using it, and may seldom appear to suffer from it; indeed, they will mostly appear to thrive on it, but it is a makeshift after all, and requires modifications. Hammarsten was the first to prove the chemical difference between the casein of cow's and woman's milk. Whatever was known on that subject at that time I collated in Gerhardt's "Handb. d. Kind," vol. i, 1875, (2 ed. 1882). But lately Wroblewski demonstrated the difference in solubility of the two milks. Woman's casein retains, during pepsin digestion, its nuclein—proteid rich in phosphorus—in solution, it is fully digested; in cow's casein the nuclein is not fully digested, a "paranuclein" is deposited undissolved and undigested.

Henry A. Bunker, in an article on the modification of cows' milk, says that the difficulty of the digestion of the casein of cows' milk in some children has seemed to be the resistance to the infant's digestive powers, even after the partial hydration supposed to be brought about by hydrochloric acid and heat. In all such cases the fecal evacuations were white, hard and dry, such as so often occur on a plain sterilized milk diet. In many of these cases, these dry, scybalous masses would frequently set up mucous diarrhea giving rise to severe colicky pains.

The only evidence of partial hydration by the acid and heat would seem to be the fact of increased nutrition in spite of these difficulties. Professor Chittenden[2] maintains and proves, by a beautiful laboratory experiment, that the products of gastric digestion have the power of combining with more hydrochloric acid than the original proteid, for as soon as proteolysis commences, the products so formed begin to show their greater affinity for acid by withdrawing acid from its combination with the native proteid, a supposition which is necessary to account for even the starting of the proteolytic process. Further, it is evident that proteoses and peptones combine with a far larger equivalent of acid than the native proteid-albumin, in the experiment, is capable of. This, doubtless, depends upon the cleavage of the large proteid molecule into a number of smaller or simpler molecules, each of the latter, perhaps, combining with a like number of hydrochloric-acid molecules. However this may be, it is evident that the products of pepsin-proteolysis combine with a larger amount of hydrochloric acid than the mother proteid, and that the transformation of the latter, at least under the conditions of the experiment, is a slow and gradual process.

It will be remembered that the original method proposed the hydration of the milk-proteids by hydrochloric acid and a rather prolonged boiling. Twenty drops of a 10 per cent. hydrochloric-acid solution were

1. Arch. f. Hyg., xvii.

2. Cartwright Lectures on Digestive Proteolysis, 1894.

added to one pint of water and one quart of milk, and this mixture was to be kept at boiling temperature for about twenty minutes. The addition of a larger amount of the acid, unless the milk was quite fresh, was found to result quite frequently in curdling the milk. It was also found that the acid so added, up to the point of saturation or breaking, exists as combined acid, as was evident from the failure of reagents to show free hydrochloric acid in the completed mixture.

The indications that the hydration secured by this method is not always sufficient to meet the requirements of certain infantile stomachs and the fact that usually in such cases the nutrition is increased in spite of incomplete and painful digestion, seemed so strongly confirmatory of the results of Prof. Chittenden's researches, that I determined to copy, in part, his experiments on HCl saturation, as applied to the proteids of milk.

To this end, milk was prepared in the original way, except that the twenty drops of dilute hydrochloric acid were added in a one-half, instead of one, pint, watery solution, and slowly but intimately mixed with one quart of milk. This mixture was brought as rapidly as possible to the boiling temperature and then set aside until another half pint of water was prepared with twenty drops more of the acid. This was added to the previously boiled milk and acid, stirred thoroughly and again brought to the boiling-point. The result thus obtained was a thoroughly palatable milk, with no taste of having been boiled, and gave no indication of free hydrochloric acid with Gunzberg's reagent. Rudisch's plan is similar to the latter.

Proteids in excess are indicated by the presence of curds in the stools. This is the most frequent cause of colic in infants. Sometimes there is diarrhea, more often constipation when the proteids are in excess. The excess of proteids frequently causes vomiting and so does an excess of both fat or sugar. If, therefore, after reducing the percentage of proteids, fat or sugar, vomiting still persists, then we must feed the baby with smaller quantities. Thus, we may have to give a four-ounce bottle where a six-ounce or a five-ounce feeding causes vomiting. Certain rules can be laid down; if an infant does not thrive, that is, does not gain in weight without showing any signs of indigestion, then the proportions, i. e., percentages of all ingredients, should be gradually increased, chiefly the proteids, however, for the latter is the most important element in an infant's food. An infant soon after birth was put on modified milk, containing:

Fat	2.00
Milk-Sugar	5.00
Albuminoids	0.75
Lime-water	1/16

I ordered eight feedings, two ounces in each. As the child was constipated, soon after we increased the formula to the following percentages:

Fat	2.50
Milk-sugar	6.00
Albuminoids	1.00
Lime-water	1/16

As the stools did not change, the fat was increased to 3 per cent., other ingredients the same. The child gained but three ounces in weight in five weeks, had greenish, curded stools, and had distinct evidence of intestinal indigestion. It also vomited curds. The general condition of the child was one of extreme irritability, with very little sleep. Hand-feeding was stopped. The child's alimentary tract was thoroughly cleaned, and a wet-nurse secured. This was when the baby was six weeks old; the child nursed well, gained six ounces the first week, eight ounces the second, and weighed fourteen pounds when it was four and a half months old. The child improved until it was seven months old, when suddenly the weight remained stationary. A specimen of breast milk was sent to John S. Adriance, the chemist of the Nursery and Child's Hospital, who found the following percentages:

Fat	2.0
Sugar	7.431
Proteids	.882
Ash	.162

Specific gravity 1031; reaction, alkalin.

It is very evident that the deficiency in albuminoids or proteids is accountable for the stationary weight. The child did not gain an ounce in one month. We discharged the wet-nurse, and resorted to hand-feeding, when the child's general condition changed, and she is bright and well to-day.

In another instance, a child had been nursed by its own mother for three months, and had gained in weight regularly at the rate of six and seven ounces per week; the stools were normal in quantity and quality, when suddenly the child appeared to be colicky, was restless at night, had green stools, and did not appear to thrive. For two consecutive weeks the child did not gain in weight, and a specimen of breast milk was sent to the Pediatrics Laboratory. Mr. R. W. Bailey, the chemist, examined the specimen with the following result.

Fat	2.43
Proteids	1.25
Sugar	6.51
Ash	.20
Total solids	10.39

Specific gravity, 1027, reaction, slightly alkaline.

The percentage of fat and proteids is so low, that it was very plain to me why this child did not increase in weight. On putting the child on an oatmeal and top-milk mixture, the digestion improved, the child's sleep was better, and the weight increased.

Another case was that of a nursling, brought to me with a history of excessive crying, greenish stools, cheesy curd in the stools, vomiting, restlessness, and a general condition of malassimilation; I asked for a specimen of breast milk, which Mr. Bailey kindly examined, with the following result:

Fat	4.32
Sugar	6.22
Proteids	1.80
Ash	.19
Total solids	12.53

Reaction, neutral.

The general history of the case showed that the child was fed every time it cried, and thus it was evident that overfeeding was the real cause of the trouble in this case, for I learned that the child frequently nursed for hours at the breast, and was also allowed to go to sleep with the nipple in its mouth. Whenever the child cried it was fed, frequently as often as every half hour, so that in this case, whilst the quality of the breast milk was absolutely normal, as demonstrated by the chemical examination, it required only the judicious interval for feeding to give the child's stomach proper time for the assimilation of its food.

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LIGHT AND SEATING IN THE SCHOOL.*

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Although we know that our vision very closely depends in its acuity on the degree of illumination, we have not arrived at establishing a definite law as to the relation of sight and intensity of light which might be formulated in mathematical terms. Experiments were made in that direction as early as 1754, by the celebrated astronomer, Tobias Mayer, of Goettingen. He changed the distances of a candle from ½ to 13 feet from certain systems of lines, and ascertained the distances in which he still could see them. From this he calculated the visual angles and found them, that is, the vision, at an inverted ratio to the sixth roots of the intensities of light. One hundred years later Aubert found that vision increases at a little faster rate than the logarithms of the intensities of light. Another method, adopted by Schmidt-Rimpler, Carp and Cohn, was to note the decrease of sight by putting smoke-colored glasses—the numbers 1 to 6—before the eyes of school-children. They observed great individual differences. The sight was relatively more impaired by decreasing illumination with increasing age, and in short-sighted than in normal eyes. More recently Uhthoff,[1] on the suggestion of von Helmholtz, made investigations, in von Helmholtz's laboratory, in Berlin, on the dependence of vision on the intensity of illumination in the different portions of the spectrum, and from his observations he constructed curves with the acuity of vision as ordinate axes, and the illumination as abscissas. The curves show great analogies in the different kinds of light from green toward red. At first they ascend very steeply, which means in the smaller intensities of illumination an enormously rapid increase of the acuity of vision with growing intensity of illumination. But, after a certain amount of the latter is reached, the curve turns rather fast and rises very slowly until it runs parallel with the abscissa. This signifies that, after a certain objective intensity of illumination is passed, a constantly decreasing ascendance of vision occurs, which finally reaches its limit although the intensity of illumination waxes more and more. Even a decrease of vision took place from glaring when the intensity of light became too high. From green toward violet a much greater variation of intensity is required for the same rise of vision than from green toward red. Uhthoff explains this from the predominance of yellow and green light in the artificial illumination. A visual power = 1.25, also decreases faster from green toward red with diminishing intensity of light than in blue light, and the difference is greater on the one side the nearer to the yellow portion of the spectrum, and on the other the nearer to the violet. This is in concordance with the phenomenon of Purkinje, namely, that after a blue and red area appear to the eye of the same illumination, the blue seems to reflect more light than the red, if the intensity of illumination is lowered, and less light than the red if the intensity of illumination is raised. The intensity of perception is a function of the intensity of illumination, which varies in the different kinds of light. The intensity of perception increases more slowly, and decreases more slowly for blue than for red at the same variation of the objective intensity of light.

Last year H. Cohn published the visual results obtained from the examination of 50,000 school-children in Breslau, made out of doors. They were much higher than hitherto supposed. Almost one-half of all the pupils had normal vision, and more than one-third of all between twice and thrice the normal vision out of doors. The former was noted more frequently in girls, the latter in boys. Only 10 per cent. had vision below the normal. This shows the immense preponderance of intensity of light emanating from the open sky over the illumination in the room, and calls for a distinction of the true acuity of light in the open air from that in the schoolroom.

Practically it suffices to know that, if the illumination sinks we can not see as well, and, if we want to continue our work, we have to bring the book nearer to our eyes, so that the visual angle and the retinal images become larger. This, however, brings about a strain of the eyes by increased accommodation and convergence, which again causes congestion of the eyeballs and head. The latter is still augmented by interference with circulation and respiration, in consequence of the stooping position, by which the blood-vessels of the neck are compressed and the venous outflow from the head impeded. If this faulty position and strain of the eyes become habitual, spasm of accommodation, stagnation of blood in the eyeball, tension of the tunics and elongation of the eyeball will follow and myopia develop.

The question arises, how can we ascertain the right illumination, below which no school work ought to be allowed? For that purpose, H. Cohn, of Breslau, devised text types, on cards of a certain tint, which ought to be easily read by a healthy eye at six meters distant in sufficient daylight. Another test is the ability of a normal eye to read diamond type—D. = 0.50—at one-third of a meter—12 inches. If not, the schoolroom requires artificial light.

A new era in the investigations for illumination in the schoolrooms was advanced in 1883, by the invention of the photometer, by L. Weber, of Breslau, which allows an exact and rapid determination of the illumination on any seat of the room in daytime, and also for artificial light. The intensity of light is given in numbers of meter-candles, the intensity of one meter-candle being the illumination of a sheet of paper which is placed one meter distant from a normal candle—of stearine, of which six weigh a pound.

As mentioned above, the best illumination is furnished by the sky, and it is desirable that each desk receive as much sky-light as possible. The quantity of the latter can be ascertained by an instrument constructed by L. Weber, which he called *Raumwinkelmesser*, a meter of bodily angles. The *Raumwinkel* of a certain point of an illuminated desk is the solid angle formed by these lines or rays which are drawn from this point to the edges of the window and impinge on the sky. If this angle equals 0°, that is, if no sky-light falls on a certain place, the illumination of the latter will be—on cloudy days—1 to 3 meter-candles, reflected from the walls of the room. If it rises to 50°—with medium elevation angle—it corresponds to 10 meter-candles, an illumination which is considered as the minimum for a working place; this, however, allows only of three-quarters of the regular vision.

There can not be too much light in a school-room; it ought to be flooded with light, that the darkest place

* Read before the Principals and Teachers of the Public Schools of Milwaukee.

1. Von Graefe's Arch., 32 and 36.

will have sufficient illumination on a dark day. The quantity of light depends on the size and number of windows, their relation to the space covered by the room, their exposure to the cardinal points and the situation of the schoolhouse with regard to its surroundings. The best arrangement would be if one wall of the schoolroom were entirely taken up by glass, like an atelier. Under all circumstances the windows ought to be as large as possible and reach up to the ceiling, since the upper part which admits the sky-light is the most important. They ought to be so large that at least 30 square inches of glass correspond to 1 square foot of floor, that is, 1 glass to 5 floor. Many older schoolhouses fall below this proportion, but some of the more modern ones exceed it. Architectonic ornaments must not encroach on surfaces which ought to be occupied by glass, and the jambs and piers between them must be as small as possible; these are made advantageously of iron, to insure the stability of the wall. The piers ought to be beveled toward the room, and the lower sill must not be less than 1 meter distant from the floor, so that the light does not glare from below.

With regard to the situation, sky-light from the ceiling would be the best. This, of course, is only attainable in the top floor and is best utilized for drawing. In the lower stories the windows ought to be on the left side of the room, so that in writing there is no shadow from the hand. In addition to these, windows may also be in the rear, which, however, would disturb the teacher at his desk. If the room is very large the illumination will be increased if windows are also on the right side. These, however, must be placed high up, near the ceiling, and must not extend downward as far as on the left side, in order to avoid perverse illumination, which has an annoying effect on the retina and causes contraction of the pupils, associated with a strain of accommodation. The consequence of the latter is, that the objects have to be brought nearer to the eyes, which again creates a tendency to myopia.

The width of the schoolroom, that is, the distance of the windows from the opposite wall, must not exceed twice the distance between desk and upper window-sill. The situation of a schoolhouse at a free place without any surroundings is most advantageous. In large cities this, of course, is not always possible. But it ought to be a rule that the distance of surounding buildings from the schoolhouse be twice as long as their height. The lowest point of the sky which sends light into the room lies immediately above the edge of the roof of the opposite house. The light from this point penetrates farthest into the room. Every other point of the sky illuminates only portions of the room nearer to the window, so that the whole area of the sky-light which illuminates the room is bordered by lines drawn from this point to the upper and lower window-sills toward the desk. All portions of the room outside these lines are illuminated by the walls of the opposite buildings, and are, therefore, darker. It will readily be conceived that the higher the story the more sky-light it will receive.

The exposure of the windows toward the east and south gives the most intense light, some, however, prefer the north, to avoid annoyance by the sun. To obviate the latter, gray curtains are the best, one from above and one from below, or with the pole fixed in the middle of the window, so that it will not be necessary to darken the whole window. The tint of the walls ought to be light-gray.

As the school hours fall in the daytime, the question of artificial light is of minor importance. If it is used it must have no glaring effect, must not fall below 10 meter-candles, must be steady and not be hot. In that respect the incandescent light is preferable, as it does not consume the oxygen of the air and vitiate it. The glass of the lamps ought to be lightly ground, to remove the glaring effects of the wire. A group of lamps may be placed in the center of the ceiling, with a porcelain reflector above them, and a sufficient number of them distributed over the remainder of the ceiling and along the cornices.

Next to good light, the most important reform in school hygiene is the correct seating of the pupils. Not only from an orthopedic standpoint it deserves especial attention in order to prevent curvatures of the spine, but also with regard to the prevention of short-sightedness, by maintaining the proper distance of the eyes from the reading and writing objects. Besides that, the position must be the most natural one in which the body is most at ease, and which, therefore, can be endured for continuous work. The body can only remain at rest in a sitting posture, if the point of gravity, which lies in front of the tenth chest-vertebra, is in a perpendicular line above a base drawn through both seat-bones, which form the lower part of the pelvis and are the rotation points of the trunk. Any deviation of the point of gravity forward or backward requires a third point of support as a guard against the unstable equilibrium thus brought about. In the forward inclination this will be the front edge of the seat, but the muscles of the pelvis which will help to support the body in that position will soon tire, and, for relief, the chest and elbows will lean on the desk. The falling backward must be prevented by a back-rest, which ought not to be higher than the lower lumbar vertebra. If there is positive horizontal distance between desk and seat, the more will the trunk fall forward and deviate from the correct upright position. We have positive distance when a perpendicular line from the posterior edge of the desk falls some horizontal distance forward from the perpendicular line dropped from the front edge of the seat. In the construction of desks positive distance must, under all circumstances, be avoided, and must be converted into negative distance, that is, the front edge of the seat must reach under the desk, namely, 3 to 5 cm. forward from the perpendicular line dropped from the back edge of the desk. The vertical distance between desk and seat must be adapted to the individual in such a way that in the erect position the eyes remain 40 cm. distant from the desk, which is also about the distance of the eyes from the elbow, when hanging down. The distance of the latter from the seat-bone is one-eighth of the length of the whole body. From this the difference between desk and seat will be found if 4 to 9 cm. are added to one-eighth the height of the pupil. The feet must rest on the floor, from which it follows that the seat must be as high as the leg, measured from the sole to the inner bend of the knee, and as long as the thigh is long, from the inner bend of the knee to the back, with a width of at least 33 cm., to secure a sufficient support of the seat-bones and the thighs. It should be slightly concave, to prevent sliding forward. Reading a book lying horizontally, requires rolling of the eyes downward, which soon becomes tiresome, or stooping of the head forward, which is also faulty. Thus an inclination of the top of the desk of 45° would be best for reading, but not for writing;

to facilitate the latter an inclination of 1 to 6, or 10° is preferable. To meet the requirements of different individuals for correct sitting according to the principles set forth, desks and seats only which permit of ready and separate adjustment will give satisfaction. The best forms are those of the Chandler Adjustable Chair and Desk Company, of Boston. If the adjustment is once made it can not be altered by the pupil, if the key to it is withheld from him, and the desk and chair are screwed firmly to the floor. The Chandler desk leaves free space for the feet of the pupil, while the single standard desk presents some obstruction. In the back of the Chandler chair the central support is curved forward at the proper height to furnish the requisite support to the sacrum and the lower lumbar vertebræ, and thus counteracts the tendency of the pelvis to rock backward.

A table of dimensions and measurements is given as a guide for the arrangement of the desk and seat, based upon the tables of Erismann and Fahrner, and similar to that of Priestly-Smith. The directions for using the table are: Measure the height of the scholar; then find in the table the number that most nearly corresponds to it, and directly under it in the same column will be found the figures required for the different adjustment. The top of the desk can be made adjustable, allowing the pupil to stand between the desk and the seat when standing. It complicates, however, the mechanism, causes noise, requires time for adjustment, and is not necessary, since the pupil may rather step into the aisle, which allows him a better and less encumbered position.

Even the best constructed seats and desks can not prevent children assuming faulty positions, if not carefully watched. Thus the duty of the teacher will remain to admonish his scholars to sit erect.

SOME REMARKS ON THE PLANTAR REFLEX, WITH ESPECIAL REFERENCE TO THE BABINSKI PHENOMENON.*

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DENVER, COLO.

Believing that the duty of the specialist in this association, working in a special line other than surgical, is to bring forward for discussion, observations and recent discoveries on mooted points that will aid the railroad surgeon and physician in the diagnosis of certain diseased conditions, I shall attempt to give the generally accepted views, of neurologists at least, on the value of the "Babinski sign," the pathological plantar reflex: or, better yet, slow extension of the great toe, with or without extension and separation of the other toes, as an aid in diagnosing disease in certain portions of the central nervous system.

My observations have been made on 830 cases, 380 in hospital and 450 in private and consulting work. Besides, 2550 cases taken from my old records, I have utilized for the purpose of determining the frequency of the plantar reflex in nervous diseases in general. I wish to express my indebtedness to Drs. Delahanty, Hall, Sewall and Freeman for the privilege of investigating the plantar reflex in their cases in the Arapahoe County Hospital, and to the resident physicians of that institution for the intelligent assistance freely rendered me by them; also to Dr. Hopkins for permitting me to observe cases under his care in St. Anthony Hospital; likewise to Dr. Lemen for allowing me to utilize the U. P. patients in St. Joseph's Hospital. I wish to thank the nurses in training in St. Luke's and Arapahoe County hospitals and some of the graduate nurses of these institutions for permitting me to investigate their plantar reflexes.

The Babinski sign is a comparatively new one, even in neurological diagnosis, and I do not fear of being accused of bringing a subject worn threadbare before an association composed mainly of railroad surgeons and physicians.

I wish to state, before going further, that I do not intend to discuss theories in this paper. My object will be to present facts and draw conclusions that I hope may aid in the diagnosis of disease in certain portions of the central nervous system.

The Normal Plantar Reflex in the Adult and the Method of Eliciting It.—If I were to include the whole phenomena of the plantar reflex I should have to note the contraction of several of the thigh muscles and some of the leg muscles which usually contract before the toes are flexed. My remarks are for railroad surgeons and physicians, and not for the neurologist. I shall, therefore, limit, for the most part, what I have to say to the movements of the toes. With this limitation, the normal plantar reflex consists in flexion of one or of all the smaller toes and frequently of the great toe on moderate stimulation of the plantar surface of the foot. The flexion sometimes delayed for a brief moment after stroking the foot is rapid, usually most marked in the outer toes, may be limited to these, but is often accompanied by flexion of the great toe. As a rule, a little firmer stroking of the plantar surface of the foot is necessary to cause flexion of the great toe than of the smaller toes. It must be remembered that flexion of the toes is usually accompanied or immediately followed by inversion and dorsal flexion of the foot at the ankle. Care must be taken not to mistake this for extension of the toes. Strange as it may seem, I have seen this error made on more than one occasion.

Precautions Necessary in Eliciting the Plantar Reflex.—In the first place the leg must be in a comfortable position, and so placed as to prevent any of the muscles of the leg or foot being put on the stretch. If the patient is nervous, and apprehensive of being hurt, it is wise to distract his attention from your investigations by engaging him in conversation. The same object may be accomplished by covering his eyes and beginning the examination by testing his tactile sensation with a camel-hair pencil. After his attention becomes concentrated on this method of procedure, the plantar surface of the foot may be gently stroked, and in the majority of instances the patient, not suspecting the object of the physician, will answer: "I feel that." The stroking should be the lightest that will elicit the reflex, but at the same time if the gentle stroking fails to cause any plantar reflex, the irritation should be increased in vigor until one is satisfied that there is no plantar reflex present. The plantar surface may be irritated on the outer or middle portions, stroking from the heel toward the ball of the foot, or from the outer to the inner surface just posteriorly to the ball of the foot. Stroking the inner side of the plantar surface often causes the most contraction of the toes, but it has the disadvantage of giving rise to greater movement of the foot, inversion and dorsal flexion at

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the ankle. The finger-nail, or what I have found better, the quill holder of a camel-hair pencil, answers every purpose for an object with which to stroke the foot. If the patient's attention is not directed to what one is doing when he is testing the plantar reflex, voluntary and semi-voluntary movements of the foot and leg are least likely to complicate the results. The plantar surface of the foot should be dry and warm when the reflex is tested.

The normal plantar reflex may be modified by age, sleep and stupor or coma, especially in children, mental development, the condition of the plantar surface, dropsy of the feet and legs, trophic changes in the feet from old nervous lesions and by ankylosis of the toes.

Age.—In the healthy adult the plantar reflex, if present, may be lessened during sleep and other unconscious states, but it is probably always attended by flexion of the toes. In infants, before they begin to walk, the plantar reflex, while brisk as in the adult, is somewhat irregular, and may be attended by contraction, or by extension and separation of the toes. Collier[1] states that in infants the extension of the toes continues in healthy subjects up to the end of the first or second year; in the weakly until the fourth year, and is occasionally found up to the sixth or twelfth year when the child is asleep. In the latter group of cases the adult reflex returns as soon as the child is awakened. Personal experience in examining the plantar reflex in infants has proved very unsatisfactory to me. The feet of infants when exposed are always in constant motion, especially while under examination. The movements consist in extension and separation of the toes, followed by rapid flexion. It has often been very difficult for me to determine whether the toe movements were more extension than flexion. I have not been able to examine the plantar reflex of infants while they were asleep in a sufficient number of cases to enable me to draw any conclusions. In one I found the reflex absent so far as the toes were concerned, in two there was flexion of the toes followed by extension, and in three the toes quickly extended and separated, followed a few seconds later by flexion.

Cohn, Schüler, Watson, Paul, Sachs and others have apparently met with equally unsatisfactory results in examining children in health.

Delayed or arrested development is often attended by an irregular plantar reflex. I have recently seen a case of idiocy in a boy of 6 years in whom the infantile type was preserved, and another in a girl of 20 years in whom the infantile type was present when the patient was asleep, but the irregular adult type appeared on arousing the girl.

The plantar reflex may be lessened or abolished by anything that lessens the sensibility in the plantar surface, such as lesions in the nerves, cold and dampness, dropsy and trophic changes of the feet and also by ankylosis of the toes.

Variations of the Plantar Reflex in Apparently Healthy Adults.—Is the plantar reflex ever continuously absent in healthy adults, and may it be absent in one foot and present in the other under such circumstances, even when all the necessary precautions are taken in testing for the reflex?

Collier says: "If the preceding points are taken into consideration, I think that the common statement that the plantar reflex is not rarely found completely absent in healthy subjects will not be confirmed."[1] Fraenkel and Collins say: "We have never found it absent without adequate attributable cause, such as peripheral neuritis."[2] Knapp and Langdon hold the same view.[2]

On the other hand, Blocq and Onahoff think it is frequently absent.[3] Schüler, Cohn, Walton and Paul found the plantar reflex absent in 10 per cent. of healthy subjects.[4]

I have records of 100 healthy subjects in whom I carefully investigated the plantar reflex and found it absent on both sides in 9 per cent., after excluding a series of 7 subjects whose cases will be referred to presently. In the 100 subjects I endeavored to take every necessary precaution. If the feet were cool or moist I had them rubbed with a coarse towel until the plantar surfaces were dry and red. Then after waiting a few minutes I covered their eyes and carefully tested the plantar reflex. Fearing that the vigorous rubbing with a coarse towel might have abolished the plantar reflex for the time being, I re-tested the cases some hours later, and still the results remained the same.

The most remarkable results were obtained on testing the plantar reflex in 7 healthy, strong and vigorous nurses while on duty in the wards of the Arapahoe County Hospital. The feet of all were warm and dry. In 1 only was the plantar reflex present in both feet; in 1 it was absent in one foot and present in the other —flexion—in 5 the reflex was absent on both sides. These tests were made at about 5 p.m., after the nurses had been on their feet all day. Thinking, possibly standing on the feet for so many hours might have something to do with abolishing the plantar reflex, I visited the hospital the following morning at 7:25 a.m., before the nurses had gone on duty, and re-investigated the reflex, but to my surprise there was no change to record in the results that I had obtained the previous afternoon, except that in the one with normal reflex in one foot, the reflex was found absent in both feet. These results would lead one to suspect that occupation has something to do with modifying the plantar reflex in health and possibly in disease.

I should remind you that these observations had to do with the toe movements alone. The curious results that I obtained on examining the plantar reflex in 7 nurses determined me to examine the plantar reflex in as many nurses as I should be able to obtain for investigating the reflex under consideration. I shall have, therefore, some 47 other nurses in whom I have to report the condition of the plantar reflex before I close this paper.

It is well known that the plantar reflex may soon be exhausted in many healthy subjects, that it may be present at one time and absent in another, but that it may be absent without any appreciable cause is important to bear in mind.

In answer to the second inquiry: "May the plantar reflex be absent in one foot and present in the other in healthy subjects, even when all necessary precautions are used in testing the reflex?" Dr. Knapp is of the opinion that such a condition is not found unless there is some disease of the nervous system. Drs. G. L. Walton and W. E. Paul, in their excellent article in the June number of the *Journal of Mental and Nervous Disease,* of the present year, give the results of their examinations of the plantar reflex in 100 normal subjects as follows: "All, or some, toes—generally the outer—of both feet flexed in 75 per cent.; no movement, 10 per cent.; flexion on one side, no movement on the other, 15 per cent." In the 100 apparently normal subjects of which I have notes

plantar reflex was present on one side and absent on the other in 5 cases.

It seems to me that if one will investigate the plantar reflex in a number of healthy subjects he will have to admit that this reflex may be absent in one or both feet in a small percentage, probably from 8 to 12 per cent.

The Babinski Phenomenon or Pathological Plantar Reflex.—This consists in rather slow and deliberate extension of the great toe with or without extension and separation of some or all of the other toes on stroking the plantar surface, as is done in attempting to test the normal plantar reflex. The pathological reflex differs from the normal reflex in three ways. 1. The great toe makes the greatest and sometimes the only movement. 2. The movement is one of extension and separation, the latter most marked in the smaller toes. 3. The movement, especially well marked in the great toe, is much slower than in normal flexion and gives rise to the impression of deliberation. I can best illustrate the difference by testing the normal and pathological reflex in the subjects whom our president, Dr. Wheaton, has kindly arranged to have present at this session of the Academy.

In 1896, Babinski first called our attention to the extensor movement of the great toe with or without extension or separation of the other toes in connection with lesions of the pyramidal tract. His first paper seems not to have attracted much attention, as it was apparently overlooked in the proceedings of a biological society.[5] He continued to investigate the subject, and two years later described certain characteristics of the pathological movement, namely, that extension is slower than flexion, and that while flexion is stronger in healthy subjects when the inner side of the plantar surface is stroked, the reverse of what holds true in extension of the toes. The second communication[6] attracted a great deal of attention, especially on the continent of Europe and to a much less extent in England. I have been unable to find any records of an American investigating the pathological reflex of Babinski, prior to the publication of Dr. James Collier's paper on the plantar reflex—both physiological and pathological. This paper appears in *Brain*, vol. xxii, part 85, p. 71, for 1899.

In the *Journal of Mental and Nervous Disease* for June, 1900, p. 307, Drs. G. L. Walton and W. E. Paul give a rather long list of investigators who have studied the plantar reflex in health and in various diseases.

Two papers, one by Walton and Paul,[4] devoted to the consideration of the plantar reflex, and one by Fraenkel and Collins,[2] giving a short consideration to this reflex, were read before the recent meeting of the American Neurological Association. In the discussion that followed a number of the prominent members participated. You see that the pathological or Babinski plantar reflex has not been prominent before the medical profession for more than two years, yet it has received general attention from the neurologists, both in Europe and America, as a diagnostic sign.

A résumé of the results obtained by various investigators of the pathological plantar reflex may be summed up in a few paragraphs. I must thank Drs. G. L. Walton and W. E. Paul for making this easy for me, as I shall still further condense their condensed summary.

Babinski in his first report—1896—simply called attention to the fact observed by him that in pyramidal disease, stimulation of the plantar surface of the foot on the affected side was followed by extension of the great toe, and often by extension and separation of the smaller toes. He termed this *le phénomène des orteils*. Two years later—1898—he called attention to further particulars, the most important of which was, that the extensor movement of the toes is slower than flexion, and that flexion is stronger when the inner side of the plantar surface is stroked, the converse being true of extension. He reported mixed varieties which he thought were pathological and physiological, as stroking one part of the foot would cause flexion and another part extension, the first part of the reaction being flexion, followed by extension. Again, he noted in some cases extension of the inner toes and flexion of the outer ones resulting from the same stroke. His observations were confirmed by fourteen observers, including Collier, of England, and Langdon, of America. There seemed to be a unanimity between the fourteen observers, in that the toes, especially the great toe, would be slowly extended on stroking the plantar surface of the affected foot in diseases of the pyramidal tract.

Collier, while he maintained that the toes extended in pyramidal disease in the adult on stroking the plantar surface, that the movement is slow, that the great-toe movement preceded the movement of the smaller toes, found a similar movement in infants, except that it is quicker. He also found that extension of the toes is the only reflex movement in total transverse lesion of the cord. He was able to obtain the extensor plantar reflex in a case of tetanus and in a case to which he had given large doses of strychnin. Babinski reported a case of strychnin poisoning in which the extensor plantar reflex was present.

"Cestan and Le Sourde found the extensor reflex in 92 per cent. of the 68 hemiplegiacs examined, and in all the 35 cases of spinal disease implicating the pyramidal tract—except one case of neuritis also—in all the 6 cases of syringomyelia, and in all the 30 cases of infantile hemiplegia and diplegia." [4]

Dr. F. W. Langdon says: "The constancy of 'extensor' plantar reflex on the paralyzed side in organic cerebral hemiplegias is such as to render the Babinski sign here a very valuable diagnostic aid, especially in the unconscious patient. The sign is present in recent and old hemiplegias, appearing usually within a few hours after the stroke and before the knee-jerks return."[3]

In looking over Langdon's 110 tabulated cases in which the plantar reflex was tested, I find in one case of right hemiplegia the right plantar reflex was irregular, or absent, and left absent. In a case of left hemiplegia, right plantar reflex was flexion, left, slight extension or absent. In another case of left hemiplegia the plantar reflex on both sides was flexion, but the paralysis had nearly all passed away. In one case of left hemiplegia, complicated by meningitis and gumma, the plantar reflex was flexion, most pronounced in the left. He also reports one case of hysterical contracture, with hemiplegia of the entire left side—face, arm and leg. The plantar reflex in this case was right, flexion; left, extensor. He states that the affection of the left side could be made to disappear on hypnosis. If this case, No. 58 in his table, was hysterical in character, the extensor reflex did not mean organic disease in this case, at least. Personally, I do not believe that a paralysis and contracture which disappear under hypnosis must necessarily be functional in character.

On the other hand, let me give the views of three

other observers who are less inclined to accord to the extensor plantar reflex so great a value in diagnosis. Giudiciandrea states that he found plantar extension in hysteria and in normal individuals. Schüler found extension plantar reflex—notably of the great toe—in 8 per cent. of the men examined, in 10 per cent. reflex was absent, and in two indeterminate; in normal women 4 per cent. extension, in 10 per cent. absent, and in 6 per cent. doubtful. In 8 cases of pyramidal-tract disease extension was present and pronounced. In children the reflex was either absent or rather unsatisfactory. Cohn found flexion in 60 per cent. of healthy persons; extension of the great toe, with either extension or flexion of the others, in 20 per cent.; absent reflex in 10 per cent.; and variable movements in 10 per cent. He found the plantar reflex generally absent in infants, but when present it was usually extension; usually extension in recent cases of apoplexy; in 4 cases of spinal spastic disease, extensor reflex in 2. In one case of hysterical hemiplegia he found extension on the paralyzed side.[4]

Schwab gives Cohn's conclusions as follows: "In the majority of all persons an irritation of the sole of the foot is followed by flexion of the toes. In lesions of the lateral tract of the spinal cord of an organic character, an extension reflex is to be observed. In no way, however, can this phenomenon be regarded as a certain pathognomonic symptom for the recognition of such disease."[5]

In the two recent papers which treat of the plantar reflex in disease of the pyramidal tract, Collins and Fraenkel state: "From our observations, we have corroborated the findings of Babinski, Van Gehuchten, Collier and others, that this type of plantar reflex—the extensor—is not found in normal individuals, and that when carefully examined with the precautions mentioned above, it is found only in cases in which there is unmistakable evidence of disease of the pyramidal tract."

In paragraphs numbered 3 and 4 of Walton and Paul's conclusions, we read as follows: "3. The Babinski reflex obtains in about 70 per cent. of hemiplegies and diplegies, and in approximately the same percentage of cases with disease involving the pyramidal tract in the spinal cord." "4. The Babinski reflex—deliberate and constant extension of the great toe, with or without extension and separation of other toes—is never present in health, and our observations lead us to doubt its existence in either functional or organic nervous or other disease not implicating the pyramidal tract."[6]

Personal Observations on the Plantar Reflex, both in Health and in Disease.—From 1878, when I first began to pay especial attention to the diseases of the nervous system, till the spring of 1899, the time when I first became familiar with Babinski's investigations, results and conclusions, I paid strict attention to the plantar reflex, but failed to observe the important points to which Babinski has so recently called our attention. During the past eighteen months, or since the spring of 1899, I have investigated the Babinski phenomenon in nearly every case that I have seen at my office, in consultation, or in St. Luke's Hospital. It was not until a few weeks ago that I utilized any of my cases seen and studied prior to my becoming acquainted with the Babinski phenomenon and the methods and precautions necessary in investigating it. In looking over my records from 1878 till 1898, I find the plantar reflex was registered as follows: Plantar reflex R. present or absent; L. present or absent, with a note as to whether the foot was flexed toward the dorsal or plantar surface.

It will be seen that I can utilize my old material only as to whether the plantar reflex was absent or present.

I have been unable to look up the records of all my old cases of nervous and mental diseases, but have been able to ascertain whether the plantar reflex was absent or present in 2550 recorded cases. In the hospitals I have studied the plantar reflex with especial reference to the Babinski phenomenon in 380 cases. In office and consultation practice and in private work in St. Luke's Hospital I have studied the plantar reflex in 450 patients suffering from organic or functional nervous diseases, or from insanity, a total of 3380, 2550 of which are of little importance in the study of the Babinski phenomenon. I shall first give a short analysis of the 2550 old cases of nervous and mental diseases.

Tumor of the brain, 100 cases: In 40 cases the pyramidal fibers were involved either directly or indirectly, and the plantar reflex was present in all on the affected side until just before death, when on account of exhaustion they disappeared. On the unaffected side of the plantar reflex was present in 38 cases and absent in 2. When the patients became greatly exhausted just before death the reflex disappeared on both sides. In the 60 in which the pyramidal tracts were not affected the plantar reflex was present in 54 cases; in 3 absent and in 3 the reflex was present on one side and absent on the other.

Intradural tumors of the cord, 5 cases: Plantar reflex was present in 3, absent late in the disease in one and present on one side and absent on the other in one.

Abscesses of brain, 12 cases: In all, the pyramidal fibers escaped; 4 of the cases were seen early in the disease and the plantar reflex was present in these; 8 cases were seen when the patients were becoming exhausted; the plantar reflex was present in 6 and absent in 2.

Cerebral meningitis, 75 cases: Sixty of these were tubercular, 50 in children, 10 in adults, 7 syphilitic and 8 from suppuration of the middle ear. In the 50 tubercular cases in children from a few months to 12 or 13 years of age the plantar reflex was absent in all after coma set in. In the 10 tubercular cases in adults the plantar reflex was absent in 8 and present in 2. Patients greatly exhausted. In the 7 syphilitic the plantar reflex was present in 4, absent in 2 and irregular in one. In the 8 from suppuration of the ear the plantar reflex was present in 4 and absent in 4.

Syphilis of the brain and cord, 100 cases: In 56 plantar reflex was present, in 30 absent and in 14 irregular.

Hemiplegia from vascular lesions, 150 cases: On the paralyzed side plantar reflex was present in 130 cases, absent in 10 and irregular in 10.

Bilateral thrombosis, 2 cases: Plantar reflex was present in both.

Posterior spinal sclerosis, 100 cases: Plantar reflex, although in some cases it was feeble, was present in 35, absent in both feet in 48, absent in one foot and present in the other 17.

Multiple neuritis, 20 cases: Plantar reflex present in 8, absent in 12.

Anterior poliomyelitis, 40 cases: Plantar reflex present in 24 cases, absent in 16 in which changes were well marked.

Neuritis of the sciatic nerve, 10 cases: Plantar reflex was present in all.

Pressure neuritis of the sciatic nerve, 20 cases: Plantar reflex present in 18 cases and absent in 2.

Pressure neuritis of the nerves of one or both legs, 12 cases: Plantar reflex present in 8, absent in 4 cases.

Myelitis, 60 cases: In 10, cervical, plantar reflex was present in all. In 20 dorsal, plantar reflex was present in all. In 30 dorso-lumbar plantar reflex was absent in all.

Complete transverse lesion of the cord, 6 cases: No plantar reflex was present.

Spinal caries, 50 cases: Plantar reflex was found in all above the lumbar region, absent in all cases of the dorsolumbar region with distinct cord symptoms.

Friedreich's disease, 8 cases: Plantar reflex was present in all.

Paralysis agitans, 8 cases: Plantar reflex was sluggish in all.

Hysteria, 50 cases: Plantar reflex was present in 29 cases, absent in 21.

Neurasthenia, 100 cases: Plantar reflex was present in 90 cases and absent in 10.

Nervous irritability—commonly known as simple nervousness, 93 cases: Plantar reflex was present in 85 cases and absent in 8.

Chorea, 50 cases: As far as I could determine, the plantar reflex was present in all, but the wild movements of the feet made in some cases accurate observation impossible.

Epilepsy, 100 cases: Plantar reflex was present in 93 and absent in 7.

Traumatism to the head, 60 cases: Plantar reflex was manifest in 40 and absent in 20.

Traumatism to spine and cord, 40 cases: Plantar reflex was present after the shock was over in all cases in which the injury was above the dorsolumbar region, provided the cord was not completely severed.

Deaf-mutes, 25 cases: Plantar reflex was present in 22, absent in 3.

MENTAL DISEASES.

Dementia, 200 cases: Plantar reflex was present in 80, absent in 104, present in one foot and absent in the other in 16.

Paretic dementia, 200 cases: Plantar reflex was present in 120, absent in 50 and irregular in 30.

Mania, 200 cases: Plantar reflex was present in 190, absent or irregular in 10.

Melancholia, 200 cases: Plantar reflex was present in 60, absent in 120, and irregular or absent in 20.

Paranoia, 250 cases: Plantar reflex was present in 200 cases, absent in 20, irregular in regard to the two sides in 30.

Feigning, 30 cases: Plantar reflex was present in 26 cases, absent in 2, present on one side and absent on the other in 2.

Stuporous melancholia, 20 cases: Plantar reflex was absent in all.

Melancholia attonita, 10 cases: Plantar reflex was present in 6 cases and absent in 4.

Weak-minded children, varying in age from 8 to 15 years: Plantar reflex was present in 40 cases, absent or irregular in 10.

Imbecility, 75 cases: Plantar reflex was present in 60 cases, absent or irregular in 15.

Idiocy, 25 cases: Plantar reflex was present in 19, absent or irregular in 6.

The average percentage of the presence or absence of the plantar reflex in each of the above individual nervous diseases is approximately as follows:

Tumor of the brain, present 85, absent 15; intradural spinal tumors, present 100; the plantar reflex was lost in all before death.

Abscess of the brain, present 83.3, absent 16.7; meningitis in stage of coma, present 13.3, absent, 86.7; syphilis of the brain, present 70, absent 30; hemiplegia from vascular lesions present 90, absent 10; bilateral thrombosis, present 100; posterior spinal sclerosis, present 52, absent 48; lateral sclerosis, present 100; anterior poliomyelitis, early present 90, absent 10; multiple neuritis, present 40, absent 60; in inflammation of the sciatic nerve, present 100; pressure neuritis affecting the sciatic nerve, present 90, absent 10; pressure on several nerves of one or of both legs, present 66.7, absent 33.3; myelitis, present 50, absent 50; complete destruction of cord, absent 100; caries of spine above dorsal region, present plantar reflex, 100; in dorsolumbar with involvement of cord, absent plantar reflex 100; Friedreich's disease, present 100; hysteria, present 58, absent 42; neurasthenia, present 90, absent 10; nervousness, present 91.5, absent 8.5; chorea, present 100; epilepsy, present 93, absent 7; traumatism to head, present 66.7, absent 33.3; traumatism to spine, present 70, absent 30; deaf-mutes, present 88, absent 12; dementia, present 48, absent 52; paretic dementia, present 60, absent 40; mania, present 95, absent 5; melancholia, present 33.3, absent 66.7; paranoia, present 90, absent 16; feigning, present 93.3, absent 6.7; stuporous melancholia, absent 100; melancholia attonita, present 60, absent 40; weakmindedness, present 80, absent 20; imbecility, present 85.7, absent 14.3; idiocy, present 76, absent 24.

The average percentage in which the plantar reflex was present or absent in the 2550 old recorded cases is as follows: The plantar reflex was present in one or both feet in 77.8 per cent; it was absent in both feet in 22.2 per cent.

I have found from observation that the simple presence or absence of the plantar reflex in organic nervous disease especially, but sometimes in the functional, depends largely on the vigor or physical exhaustion of the patient at the time the test is made. For instance, vigorous physical exercise for fifteen or twenty minutes in the gymnasium apparently does not modify the plantar reflex, but, on the other hand, laborious work carried to the point of almost complete exhaustion will abolish the reflex. In the case of multiple neuritis the plantar reflex is present and vigorous extremely early in the disease. In nearly all severe cases, at the height of the disease, especially if there are great physical exhaustion and trophic changes in the feet, the plantar reflex is almost invariably absent. After diphtheria, if the plantar reflex becomes excessive, I have learned to fear multiple neuritis.

Tumor and abscess of the brain are no exception to the general rule, that in complete exhaustion preceding death the plantar reflex usually disappears.

Since my attention was called to Babinski's observation on the plantar reflex, which was about eighteen months ago, I have carefully examined the reflex with especial reference to this phenomenon.

I examined 100 patients in the hospital, apparently free from any nervous or other trouble that should affect the plantar reflex, using every necessary precaution, and I obtained the following results: Plantar reflex present, 86; absent, 9; absent on one side and present on the other, 5. There was no Babinski phenomenon in any of these.

The above percentage of absent plantar reflex in the normal subject is in line with the results of Walton and Paul, and with those of several other investigators, but contrary to the views of Knapp, Langdon, Collier, and Collins and Fraenkel. The number of cases in which I found the plantar reflex in one foot and absent in the other is less than the results obtained by Drs. Walton and Paul.

(To be continued.)

COSTA RICA, ITS PHYSICIANS AND MEDICAL INSTITUTIONS.

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CHICAGO.

The short midwinter vacation I am spending in Costa Rica has afforded me an excellent opportunity to study the diseases of this little republic and to become acquainted with its leading medical men and its most important institutions devoted to the care of the sick. Costa Rica is the smallest of the Central American republics. Its present population does not exceed 300,000, and is made up largely of Indians, Jamaica negroes and Spaniards, with a small sprinkling of whites from the United States and the different European countries. The coast on both sides is low and swampy to the base of the mountains. The low lands supply the world with bananas, and the mountain sides are covered with coffee plantations. The interior is mountainous and picturesque, a Switzerland plus the tropical forests and impenetrable jungles. Along the coast the heat is depressing, being greatly aggravated by the ever-present atmospheric humidity. At an elevation of from

3000 to 4000 feet the climate is delightful, the temperature ranging from 70 to 80 F. throughout the year. The nights are always cool. San José, the capital, is located in a beautiful and fertile valley at an elevation of nearly 4000 feet above the level of the sea. Its present population is 20,000. It is lighted by electricity and has an efficient telephone system and an electric tramway. Cartago is the next largest city, with a population of 13,000. Port Limon is the most important seaport town and is connected with San José by a narrow-gauge railroad, constructed by Mr. Keith, an American capitalist, at an expense of $15,000,000. Nearly all of the large business firms and plantations are owned by foreigners, who have contributed largely to the rapid development of the resources of the country. The government and laws of the country are modeled after those of the United States.

THE COSTA RICA PHYSICIANS.

There are at the present time few parts of the civilized world which are not amply supplied with medical men who are able and willing to serve the sick. Costa Rica is well supplied with doctors, native and foreigners. I take this occasion to warn our recent graduates not to come to this country with the expectation of gaining fame and amassing a fortune in a few years. Those who have done so have, in the majority of cases, been sorely disappointed. There are very few rich people in this country and even the well-to-do are far apart. A man with $200,000 is considered wealthy, and $10,000 is looked upon as sufficient to place a family in easy circumstances. More than 75 per cent. of the population are poor, and at the end of the year have little, if anything, left with which to pay for medical services. There are about sixty doctors in Costa Rica, most of whom live in the larger cities. There are over thirty physicians in San José, with a population of less than 25,000. Then, too, the fees are very small. The average charge for a visit in this city does not exceed $1.00, and nearly every doctor finds at the end of the year when he collects his bills that nearly one-half of them are worthless. The poor are often content with one visit, even in grave and prolonged cases, more especially those who expect to pay their bills.

Surgical work is estimated on the same scale. One hundred dollars for any kind of an operation is regarded by surgeon and patient a handsome fee. Fortunately Costa Rica has no medical college. A number of years ago some efforts were made in this direction, but the best elements in the profession vetoed the project. For some reason that even the native doctors do not comprehend, Madrid is not selected as the place to obtain a medical education, as we would naturally take for granted, considering language and the fact that the best families are of Spanish descent. Most of the Costa Rican physicians received their medical education and training in the United States and England, only a very few have visited the universities of Germany and France. The prominent doctors occupy a high social position and command a powerful political influence. Dr. Duran served as vice-president and, when the president was forced to resign, filled the highest position in the gift of the people. Cabinet positions have been repeatedly occupied by the ablest and most popular physicians. As a rule, the professional relations are harmonious. The spirit of progress and advancement is manifest by occasional visits to the great medical centers of the United States. There can be no doubt that the projected construction of the Nicaragua canal will be one of the many means to establish a closer relationship between the medical profession of our country and that of Costa Rica.

ACADEMY OF MEDICINE OF COSTA RICA.

The only medical society in Costa Rica is the National Academy of Medicine. The president for 1900 is Dr. Bonnefil. The weekly meetings are held in the capital city. It is a source of regret that a few of the very best men have not seen their way clear to become members. The excuse offered that the transactions lack in scientific work is hardly tenable, because those that can not learn should consider it a great privilege to teach. The Academy is invested with certain rights granted by the government; for instance, the members nominate and elect the Board of Medical Examiners. Every physician who intends to practice his profession must pass a satisfactory examination before this board. No one is admitted to these examinations without a diploma from a medical college in good standing.

HOSPITALS.

Hospitals have been established in all of the larger cities. There are two small hospitals in Port Limon. An effort is now being made to consolidate them into one, a move in the right direction. One of these little hospitals is maintained by the United Fruit Company and the other by the railroad, and both are in charge of Dr. Steggall, the most prominent practitioner on the coast. There is only one hospital in San José to which the sick poor of the city and district are admitted. It is built on the pavilion plan and has a capacity for one hundred patients. It is in charge of the Sisters of Charity Saint Vincent de Paul, with Sister Josephine at the head. The ample surrounding grounds have been appropriately beautified by skillful gardening. Dr. Nunez, the most prominent physician in the city, is medical superintendent; Dr. Duran, chief surgeon. The remaining medical staff consists of: Dr. Th. M. Calneck, consulting surgeon; Dr. M. Bonnefil, consulting physician; Drs. F. Zumbado and G. Jiminez, assistant surgeons; Drs. E. Rojas and J. M. Soto, medical attendants.

Dr. Nunez is a leader in politics as well as in his profession and everything pertaining to the public welfare. Dr. Duran, his classmate and partner, is an expert and successful operator. The morning I visited the hospital he had commenced the difficult task of entering the bladder without a guide, in a case of impermeable stricture of the urethra. The patient, a young man, was greatly debilitated by the secondary consequences of the stricture, septic cystitis and phlegmonous inflammation of perineum and scrotum; the latter had resulted in numerous fistulæ. It was, as he said, the most difficult case he ever encountered. His skill, patience and perseverance were finally rewarded by success, when he emptied the bladder of a large quantity of ammoniacal urine and established free drainage. The operating room is modern and furnished with a good instrument supply and the necessary facilities for aseptic and antiseptic work.

Recently a very much-needed addition has been made in the form of a maternity ward and it was my pleasure to see two babies which first saw light in the great room which is destined to become a refuge for many an anxious, homeless mother. The institution, like all those in charge of the Sisters of Charity, is scrupulously clean. The food is plain, but palatable and substantial. It is time that the sisters, like those of the same order in the United States, should establish and maintain a training-school for lay nurses. I made a strong plea to accomplish this most desirable object and trust that it made a sufficient impression on Sister Josephine to at least seriously consider the propriety of such a change in the nursing of the sick inside and outside of the hospital. There is only one ward set aside for private patients, who pay from $7 to $14 per week, including medical attendance. The pharmacy is in charge of one of the sisters.

LEPER COLONY.

Costa Rica, like all Central and South American states, harbors its full quota of lepers. It is estimated that at the present time there are scattered throughout the state about 150 to 200 lepers. The adjoining United States of Colombia, with a population of 2,000,000 has 35,000 lepers. The disease invaded Costa Rica from that source about fifty years ago, and since that time it has become diffused over the entire state. On paper, segregation has become a law, but like many other laws it has never been carried into effect. The leper home consists of a number of old buildings on an eighteen-acre lot near the western limits of the city, and contains 30 inmates. It is in charge of Dr. Toledo, who is at the same time the sanitary inspector of the city. The sexes are about equally represented. It is a noteworthy fact that all Costa Rican lepers are the subjects of the nervous form of the disease, while the three Jamaica negroes are suffering from the advanced stages of the tubercular variety. Dr. Toledo is now testing the therapeutic value of a new vegetable remedy, but so far no positive results have been observed.

INSANE ASYLUM.

The insane asylum is a state institution to which the poor insane from all districts are admitted. It can accommodate 150 patients, and at the present time contains 135 inmates. Ample provision has also been made for private patients of the first, second and third class, who at a comparatively small expense can avail themselves of all the advantages of a private asylum. This institution is known by the euphonious name of Asilo Chapui in memory of a saintly priest who died one hundred years ago, and who donated a large tract of land to the city. For the last eleven years the asylum has been under the case of Dr. Maximilian Carl Bansen, a German physician of more than national repute. To the great learning, executive abilities and enthusiasm of Dr. Bansen must be attributed the great success of this institution. The hospital is surrounded by a magnificent flower and vegetable garden. The floral wealth of this garden can be approximately estimated from the fact that it contains 160 varieties of roses. The remaining part of the grounds supply the asylum with coffee, bananas and other tropical fruits. According to the statistics, including many years, 50 per cent. of those admitted recover their mental equilibrium, and of those discharged cured only 2 per cent. have been known to suffer from relapse. This marvelous result is secured by the methods employed in the treatment. Dr. Bansen places the greatest stress on abstracting the patient's mind by giving him employment which does not tax the mental faculties, that is, physical exercise and mental rest. About 40 per cent. of his patients are thus employed. Dr. Bansen regards the excessive use of the strong alcoholic native liquor as the most important etiologic influence in provoking the disease. He looks upon coffee and all stimulants as harmful in its treatment. The asylum is a model of cleanliness and its entire management bears testimony to the great executive abilities of its director. Although the physicians in every part of the state send patients to the asylum, practically it is left for Dr. Bansen to determine their mental condition and reject or admit them.

PREVAILING DISEASES.

The two diseases which afflict this country the most and which intimidate the foreigner as well as the native, are malaria and yellow fever. Malaria of the most malignant form prevails throughout the entire year in the banana districts, along both coasts, but the physicians here are willing to admit that no part of the state is entirely free from it. The pernicious form of malaria is often mistaken for yellow fever, and vice versa, something that has given rise to a great deal of confusion at the seaport towns under quarantine regulations. The Jamaica negro possesses the greatest intrinsic resistance to malarial infection and he is the one upon whom the banana grower must rely almost exclusively in tilling his lands. The negro knows this only too well, hence, his haughty demeanor and sense of independence. The physician's here do not look upon the mosquito as the sole carrier of the disease, as they are frequently called upon to treat malaria in localities where there are no mosquitoes. In pernicious malaria they rely almost entirely on deep subcutaneous injections of bisulphate of quinin in 40-grain doses.

Colon and Panama are the hotbeds of yellow fever and the free communications between these places and the seaport towns of Costa Rica are responsible for frequent outbreaks of the disease. Segregation and disinfection are not observed to the extent they should be in preventing the spread of yellow fever. Port Limon has gained an unenviable reputation as a focus of infection, largely by mistaken diagnoses. That the disease frequently makes its appearance at that point there can be no question, but that many cases of malarial fever have often closed the doors of commerce is equally true. Isolated cases of yellow fever occasionally have been seen in the mountainous regions and it is not always easy and sometimes impossible to trace the source of infection. Goitre is very common among women, young and old. Gonorrhea and syphilis are prevalent to an alarming extent and are by no means limited to the lower classes, although the negroes furnish the largest percentage. Pulmonary tuberculosis and tuberculosis of the lymphatic glands, bones and joints appear to be quite rare. Rheumatism is very common and affects the inhabitants of the low lands as well as of the mountainous regions. Barbadoes leg is quite frequently seen, but is more common in the South American countries. Cholera infantum claims many victims throughout the entire year, and it is said that less than 50 per cent. of the infants reach childhood. Faulty feeding is the cause of this enormous infantile mortality.

QUARANTINE.

There is certainly something wrong with the quarantine regulations between the ports of New Orleans and Limon. The health authorities of the port of New Orleans enforce quarantine against the port of Limon seven out of twelve months every year, to the great detriment of the shipping interests. The fact is the New Orleans authorities have no faith in the health officer of the port of Limon and the doctors employed by the United Fruit Company. To a certain extent the action of the Board of Health of Louisiana is justifiable, as formerly the United Fruit Company usually employed recent graduates in medicine, who often have never seen a case of yellow fever and who are not competent to differentiate between this disease and grave attacks of malaria. The same can be said of most of the physicians sent by the board of health of other states to the seaports of Central America. The quarantine system at the port of New Orleans is, however, too complicated. There are two quarantine stations under the jurisdiction of the State Board of Health which often at a distance decides whether or not a vessel should be detained, which often gives rise to great confusion and not infrequently enforces unnecessary quarantine. The best solution of this important and difficult question would be to place the port of New Orleans under the jurisdiction of the Marine-Hospital service, which has done such excellent work in other states in guarding our country against invasion of yellow fever and other infectious diseases from foreign ports.

In conclusion I desire to recommend to my colleagues who are in need of midwinter vacation the hospitable shores and beautiful climate of Costa Rica. The cool nights in the mountainous region can not fail in securing rest for the brain as well as the body, and in restoring the nervous energies which are so heavily taxed by an onerous and exacting practice. They will meet in San José and elsewhere a cordial reception on the part of their colleagues and will leave the country, as I shall do in a week or two, with many regrets and the most pleasant memories, fully satisfied that the time was well spent.

San José, Dec. 30, 1900.

Surgical Treatment of Bubonic Plague.—In a report to the Surgeon-General of the Marine-Hospital Service, Acting Asst.-Surgeon W. Havelburg, of Rio Janeiro, Brazil, states that the clinical registry at the Paula Candido Hospital during the period from June 1 till August 31 shows that there were 221 plague patients treated by extirpation of the infected glands, of whom 45 died, giving a death-rate of about 20.8 per cent. And of 143 patients with solitary infected buboes, treated in the same manner, 23 died, showing a death-rate of about 16 per cent. The diagnosis in all the above cases was confirmed by two bacteriological examinations, one before removal to the hospital and the other after admission to the wards. Serotherapeutic treatment was instituted in a number of other cases, but the effects of operating displayed such favorable results that injection of serum in the others was deemed unnecessary. The necropsy reports in the cases that died showed buboes that were inaccessible to operations, being scattered in the mesentery or deeply situated in other tissues.

Sero-Agglutination in Tuberculous Effusions.—Courmont announces that sero-agglutination does not occur in any effusion except those of tuberculous origin and that it is inversely proportional to the virulence and rapidity of the infection. He noted it in 74 per cent. of all cases of tubercular pleurisy, in a proportion of 1 to 5 or to 20 or even higher, but it was absent in all cases of tubercular miliary pleurisy, peritonitis or meningitis. The effusion in experimental tuberculosis does not agglutinate if the culture inoculated was virulent, but with an attenuated culture is was very pronounced, as much as 1 to 600 in the dog, for instance.—*Sem. Méd.*, November 28.

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MALARIAL FEVER.

Malarial fever prevails especially where heat, moisture and decomposing vegetation are present because these are favorable to the existence of mosquitoes. Malarial infection occurs most commonly after sunset, because mosquitoes, after remaining in hiding during the day, set out upon their depredations after dark. The infection is not widely diffused in a horizontal, oblique or vertical direction because mosquitoes do not fly far from their place of origin, and especially not to a great height. The infection is not conveyed, but rather hindered, by winds, because the insects do not leave their hiding-places when the wind blows. Woods, instead of preventing, may be foci of malarial infection, because the mosquitoes make their hiding places in damp woods and trees.

A great advance was made when, in 1880, Laveran, a French army surgeon at Algiers, discovered the parasite of malarial fever, but it was not till fifteen years later that their complete life-cycle was demonstrated by Ross, a British army surgeon in India. The observations of Laveran were soon confirmed and elaborated by others, particularly in Italy and America. It has been shown that the malarial parasites are protozoan organisms belonging to the order of sporozoa and, by reason of their living at the expense of the red blood-corpuscles belonging to a special suborder known as hemosporidia. Members of this group, though not necessarily of the same genera and species, have been found in batrachia and reptiles, in birds and in mammals.

For a long time a warm discussion was waged as to whether the parasites were polymorphous varieties of a single organism or so many different and distinct organisms, but the consensus of opinion is at present in favor of the latter view. According to Celli there are in man at least three species: Two for the mild fevers—spring quartan and tertian—and one for the severe or estivo-autumnal fevers—tertian and quotidian. The individual identity of the several varieties of malarial parasites has been demonstrated by inoculations from man to man, the same febrile type only being reproduced in every instance. Of course, mixed infection is impossible, and may give rise to anomalous or atypical forms of fever.

It has been shown that in man, as in birds, the hemosporidia have two life-cycles: an asexual cycle in the blood of malarial animals, and a sexual cycle in the bodies of special mosquitoes.

For centuries it has been a popular belief that mosquitoes have something to do with malarial fever, and Koch found that a similar notion prevailed among the natives in South Africa. In 1848, Nott, an American, suggested that both yellow fever and malarial fever were conveyed through mosquitoes. A similar view was put forward by Allessandrini in 1870, by King in 1883, by Laveran in 1884, by Flügge in 1889, and by Pfeiffer and Koch in 1892. In 1894, and again in 1896, Manson proposed the view that the malarial parasites, in order to maintain their existence, must pass from man to another host, and he concluded that inasmuch as they are incapable of leaving the body through their own efforts and are not extruded in the excreta, they must be removed by some blood-sucking animal, which he believed to be a particular species of mosquito. Ross, then, in 1895 and 1897, was able to demonstrate the parasite in the stomach-wall of particular mosquitoes fed on malarial blood, and he was able also to convey the parasite through the mosquito to birds and to man. Ross' observations were at once verified and elaborated by Italian investigators and others and the evidence is now so complete that there can be no further doubt as to the part played by mosquitoes in the propagation and transference of malaria. If additional confirmatory evidence be wanting it can be found in the development of malarial fever in healthy individuals, in London, inoculated with malarial mosquitoes brought from Italy. Further, the disease did not develop in a number of observers who lived during the malarial season in an intensely malarial district of Italy, but merely protected themselves against the bites of mosquitoes, while the disease prevailed as usual among others in the same locality but not protected against mosquitoes. Not all varieties of mosquito, however, act as the definitive host of the malarial parasite, of which man is considered the temporary host. It is especially insects of the genus Anopheles, and particularly Anopheles claviger, also called maculipennis, although other varieties are capable of playing the same rôle. It is not known with certainty whether, apart from the intermediation of man, the malarial parasite may be transmitted from one mosquito directly to another, either from a parent mosquito to its offspring or from the body of a dead mosquito eaten in stagnant water by larvæ.

It may be conceived that certain conditions predispose to malarial infection apart from those that favor the existence of the infecting mosquitoes. Chilling of the surface of the body seems to be the most important of these, probably by lowering the bodily resistance. The spring is generally the season for mild cases and the autumn that for severe cases.

THE Michigan Board of Examination and Registration has thus far put 43 American medical colleges on its list of reputable schools.

THE PRESENCE OF BACILLUS TUBERCULOSIS IN THE HEALTHY NASAL CAVITY.

Cornet's experimental work led him to state that infected dust is an important and dangerous factor especially to those in attendance on tuberculous patients, and that this danger lies first and foremost in tuberculous sputum that has become dry. In one of his series of experiments he collected 149 samples of dust from various places frequented by tuberculous patients, as hospital wards, private dwellings, streets, etc., and made inoculations into 392 animals. Fifty-nine animals became tuberculous, representing 40 samples of the dust, or a percentage of 26.8, while on the other hand 29 animals which were inoculated with dust from non-infected places, remained healthy.

An interesting series of experiments has recently been made by Flügge and his associates in Breslau with the object of showing, 1, the infectiousness of dust bearing dry powdered sputum, and 2, the infectiousness of fine droplets of mucus expelled by talking, sneezing, coughing, etc., when laden with tubercle bacilli. In the first series, carried out by R. Sticker, infected dust was blown into the faces of guinea-pigs and compared with like tests in which sterilized dust was employed. In the infected cases seven of the eleven animals became tuberculous, while those inoculated with sterile dust remained healthy. But he found the infectiousness of such dust to depend directly on the strength of the air current employed and the absence of moisture. The finest, lightest dust, when perfectly dry, was able to produce an inhalation tuberculosis under the influence of very weak currents of air.

Concerning the infectiousness of fine droplets of mucus laden with tubercle bacilli, uniformly positive results were obtained by Laschtschenko, Beninde and Heymann, each experimenting in a different way. In these experiments phthisical patients were made to cough or speak into the faces of guinea-pigs directly, or they were allowed to cough or speak near sterile plates or dishes containing sterilized salt solution, and this in turn was used for inoculation. It was found that the elements of distance and duration of exposure play most important parts in the dissemination of the germs, for only a few positive results were obtained from exposures made more than 1.5 meters away from the patient and then only after a considerable time. That the conditions in these experiments are actually present in hospitals, factories, counting-rooms, workshops and the like, where the occupants are at all crowded, there is no doubt; it would seem, as urged by Flügge, that this method of infection might largely be done away with if prophylactic measures were instituted.

Strauss first demonstrated in 1894 the presence of virulent tubercle bacilli in the nasal cavities of those who, being non-tuberculous themselves, were in more or less constant attendance on tuberculous patients. His experiments were made on house-physicians, nurses and non-tuberculous patients, and resulted in his finding the micro-organism in 9 of 29 persons examined, or approximately 41 per cent.

This work suggested the question of the presence of tubercle bacilli in the nasal cavities of healthy persons who did not have the care of the tuberculous at all, and were subjected to only the ordinary amount of infection to which every one living in a large city, especially, must submit. In carrying out this work Jones[1] examined 29 men all in good health, no tuberculous lesions being discovered on physical examination. The contents of the nasal cavities of each, consisting of mucus, solid particles, dirt, etc., were removed by sterile cotton swabs, from the nasopharynx outward, and washed into a test-tube containing 10 c. c. of a sterilized normal salt solution. This solution was then injected, under aseptic precautions, into the abdomen of a guinea-pig, the wound closed by collodion dressing, and the animal allowed to live until it died either from the effects of the inoculation or from other causes. Of the 30 animals inoculated death occurred in times varying from a few hours to eighty-six days. Each animal was examined carefully post-mortem and in the series 3 revealed a generalized tuberculosis of the viscera. This is approximately 10 per cent. of the cases.

In general, this series of experiments goes to show that virulent tubercle bacilli may be present in the nasal cavities of healthy persons in the ordinary walks of life, but not so frequently as in those who have the care of the tuberculous.

THE PURIFICATION OF SURFACE WATER-SUPPLIES.

The Committee on the District of Columbia of the United States Senate is investigating the relative merits of slow filtration through sand beds and rapid filtration in connection with the use of coagulants as applied to surface waters for their purification. The Engineer Department of the Army made experiments on the Potomac river water during the past year and recommended for the water-supply of Washington the adoption of a system of mechanical filtration with alum as a coagulant. The District Medical Society took exception to this recommendation and urged the construction of sand beds for slow filtration as giving better sanitary results.

From the hygienic standpoint the subject before the senate committee is not a difficult one. There is no question as to the efficiency of slow sand-bed filtration in removing bacteria from a polluted water and lessening the prevalence of typhoid fever among the communities using the filtered water. There is, on the contrary, a question as to the efficiency of mechanical filtration, particularly as to the removal of typhoid bacilli, for the installation of mechanical filtration plants in cities has not been followed by that marked diminution in the mortality from this disease which has been recorded in communities which have adopted the sand-bed filters. The mechanical filter is still in the experimental stage

1. Medical Record, Aug. 25, 1900, xviii, 285-289.

so far as concerns typhoid fever. Its effluent is clear and transparent, but this, from the sanitary point of view, is relatively a minor consideration, the object being to prevent disease and lessen the death-rate.

The efficiency of the sand-bed depends on a slow and regulated filtration; that of the mechanical filter on the addition of alum to the water to clarify it. Carbonates in the water decompose the alum, precipitating the gelatinous aluminum hydrate which entangles clay and other particles constituting the turbidity, together with the bacteria which may be present. These are strained off by the passage of the water through the mechanical filter. It is the alum, not the filtration, which is actively concerned in the removal of the bacteria. If enough alum is added the effluent is clear and gives satisfactory results on bacteriological examination. If an insufficient quantity is added the effluent may be turbid and charged with bacteria. If too much is added or more than can be decomposed by the carbonates present, alum will remain in solution in the effluent as a most undesirable accidental constituent. With care at the water-works alum may no doubt be added to effect its purpose without a trace of it appearing in the effluent, but it will be conceded by all medical men that chemicals which would be injurious in excess should not be added to a water-supply if a satisfactory purification can be effected without their use; and the experiments of the Engineer Department on turbid Potomac river water have shown that such purification can be accomplished by slow sand-bed filtration.

A BAD SUPERSTITION.

According to a Toledo (Ohio) physician, some people in that city have a superstition against paying doctors' bills. They think if they pay him in full they will have to pay him again. "It may be all right," he says, "as a superstition but it is pretty tough on the doctors." This must be a very widespread superstition, and its existence must have been in the mind of the celebrated medical writer who dedicated his works "to all men who are free from superstition." A certain amount of superstition is excusable, in fact it seems almost unavoidable, and the above dedication hits a very limited number of individuals, if indeed any at all, if the term is taken in its widest sense. But the particular form of superstition mentioned above will not be encouraged by the medical profession.

THE SMALLPOX EPIDEMIC.

One of the most afflicted places in the United States appears to be the town of Decatur, Neb., with a population of 625, in which, and its near vicinity, there were reported in the health reports of the Marine-Hospital Bureau, 451 cases of smallpox between April 1 and December 14, 1900. It would seem that the antivaccinationists must have had full sway there, at least as regards revaccination. The small mortality—only four in all—reported would indicate a mild type of the disease, what is usually called varioloid, but does not lessen the peculiarity of the situation. It is a pity that so salutary a hygienic resource as vaccination has to be defended at the present time, and the epidemic of smallpox the country is now experiencing may have a good effect in reinstating it in popular favor. With "Christian Science" and Dowieism in the field, and with individual and organized antivaccinationists, there is still "chance for a pretty fight" in some communities before the public health is fully protected by compulsory vaccination.

TOO MUCH QUALIFIED.

It appears from an editorial note in the *Medical Press and Circular* that it is possible to be too well fitted for a medical position in Great Britain. In a recent competition for the position of resident house physician at Cardiff, Wales, the rejected candidate showed higher qualifications than his successful rival. When the selection was challenged it was argued on the part of the medical board who made the choice, "that when a man who was head and shoulders above his commanding officer was appointed to a subordinate post there could be no discipline." In other words, the lack of medical qualification of the superior officer should deprive the institution of the services of any better-qualified employees, the better qualified the worse fitted for the place. The plea that discipline would suffer under such conditions is an admission of executive incompetency or a slur on the loyalty and good faith of the better-qualified candidate, and is contemptible in either case. The fact that the resignation of the medical board was threatened when the directors overruled their rejection of the candidate does not speak well for their professional or scientific morals. Moderation in all things is sometimes good advice, but we never knew it applied especially to professional qualifications before.

A NEW YORK "AUNTIE."

A Brooklyn (N. Y.) homeopath, one Dr. Montague Leverson, is reported to have advised antivaccinationists to shoot down any one trying to vaccinate them or any member of their families. While the individual seems to be a general "auntie," and his influence is lessened to some extent as this fact is commonly appreciated, yet such advice is liable to create trouble when given to ignorant and fanatical people and can not therefore be condoned on any claims of the giver's irresponsibility. A still more serious matter, if true, is his statement publicly made that he had attended thirty cases of smallpox, some of them of the most virulent nature, without reporting them to the board of health. If he did this he is more than a blatant nuisance, he is a living danger to the community and needs the earliest possible attention on the part of the criminal courts. A man who goes about endangering the lives of those who come in contact with him by carrying the infection of a loathsome and fatal disease, who by his concealment of facts prevents the individuals and the community from protecting themselves from the same, and who further does all he can to advocate the neglect of all precautions, is a public enemy. We may perhaps try to consider him a fanatic and therefore only a dangerous fool, but if the criminal law can not touch him the lunacy law should; in any case, his mischief-making should be stopped. There are too many such individuals extant and it is

possible that a dose of the criminal law would be the best prophylactic, if not cure, for this kind of lunacy.

THE EPIDEMIC OF INFLUENZA.

The epidemic of influenza that is now spreading over the country rivals, if it does not exceed, in extent and virulence that of 1890 and 1891. Indeed, there are some reasons to think that it may be attended with even a greater increase over the average mortality than was observed in that epidemic. The bacillus was detected by the Chicago Health Department as early as October, but it is only lately that the disease has taken on an especially severe type and it is probable that the same is true in other cities. In New York it was reported that the number of cases during the second week in January exceeded a hundred thousand, and similar reports of its frequency come from other sections all the way from the Atlantic to the Pacific. Cases of grip pneumonia seem to be particularly frequent with this epidemic and a very perceptible figure of direct mortality from influenza is noticeable in the death statistics. The mortality from other diseases following and directly induced or prepared for by influenza can hardly be calculated, but is likely to seriously affect the death figures, especially in the large cities. There will, in all probability, be very much lessening in the dividends of life-insurance companies for the present year on account of the epidemic. The infectiousness of grip does not appear to be thoroughly realized by the public and the chances of exposure are so great that it is possible that if it were, the spread of the disorder would be very little affected. This is no reason, however, why unnecessary chances should be taken and it might be well if people were generally warned that there are possibilities of its communicability. It is of still more importance that they should be instructed as to the risks of exposure during and shortly after an attack. Influenza is the young David among epidemics; while cholera and ordinary pestilences slay their thousands, it slays its tens of thousands through the other disorders it directly favors and incites.

AGGLUTINATION OF THE TUBERCLE BACILLUS BY TUBERCULOUS EXUDATES.

As previously noted in these columns considerable work is being done on the value in diagnosis of the agglutination of the tubercle bacillus by the serum of tuberculous patients. Arloing and Courmont have been interested especially in this subject, and Arloing has developed a special method for obtaining homogeneous cultures of the bacillus suitable for the agglutination test. Recently Courmont[1] published a summary of his observations during the past two years on the agglutination of the tubercle bacillus by various exudates, tuberculous as well as non-tuberculous. He believes that this method of serum diagnosis may be of great practical importance. The reaction is easily and rapidly obtained in the positive cases. Non-tuberculous exudates do not agglutinate the tubercle bacillus when diluted 1:5, while the majority of tuberculous exudates agglutinate the bacillus in dilutions of from 1:5 to 1:20. Exudates in especially virulent cases of tuberculosis sometimes do not give the reaction, and in certain benign cases of tuberculous pleuritis the reaction may be absent in the beginning but it may appear later on toward the period for recovery. There is no constant relationship between the agglutinating power of the blood-serum and the exudate in these cases—the serum may be agglutinating while the exudate is not, and vice versa. The agglutinating properties of tuberculous exudates of experimental origin correspond closely to those observed in human serosities. Hence a serous fluid that gives the reaction at a dilution of 1:5 is in all probability of tuberculous origin; absence of the serum reaction is merely presumptive evidence against tuberculosis. Further studies are desirable in order that material may accumulate from which desirable conclusions may be drawn. A comparative study of the agglutinating powers of the blood-serum and of the pleural tuberculous exudates would probably be of considerable value.

1. Arch. de Med. Exp. l'Anat. Path., 1900, xii, 697-732.

OCCURRENCE OF TYPHOID BACILLI IN EXUDATIVE AND SUPPURATIVE PROCESSES AND IN THE FETUS.

The careful study by modern exact methods of the various inflammatory complications and sequelæ of typhoid fever has shown that bacillus typhosus may be the only micro-organism present. Its etiologic relationship in some of the processes here referred to seems firmly established. Pleurisy, a not common complication of typhoid fever, has been shown to occasionally depend upon the presence of the typhoid bacillus. Gordinier and Lartigau[1] describe a case of this kind. A purulent exudate had to be removed from the right pleural cavity by aspiration on three conditions. This fluid contained the bacillus in pure culture. The third week seems to be the favorite time of onset of typhoid pleuritis, the fluid in the majority of cases being purulent. Hemorrhagic and serofibrinous exudates also occur. Oscar Richardson[2] describes an instance of typhoid abscess of the mammary gland, developing during convalescence from typhoid fever; also a typhoid suppurative periostitis of the tibia under similar circumstances. He furthermore describes typhoid suppurative prostatitis and a pelvic abscess containing typhoid bacilli in two cases which came to autopsy. The typhoid pelvic abscess occurred in a tuberculous woman who had both typhoid and tuberculous ulcers in the intestines and also tuberculous salpingitis. These examples show that the pyogenic activities of the typhoid bacillus may unfold themselves in all possible localities. Richardson also describes two fetuses expelled prematurely in the course of typhoid fever in the mothers; in one typhoid bacilli were found in the liver, in the second they were more widely distributed. In all the cases mentioned in the foregoing the bacilli were agglutinated by typhoid serum in marked dilutions.

THE BACTERIOLOGY OF ACUTE APPENDICITIS.

It has long been the general opinion that the colon bacillus is the essential micro-organism in acute appendicitis. The presence of this bacillus in the intestinal contents and the frequency with which it has been found in acute appendicitis in pure culture have left little

1. American Journal of the Medical Sciences, 1901, cxxi, 43-45.
2. Boston Journal Society of Medical Sciences, 1900, 116-121.

room for any other opinion. There has been an idea current for a long time, however, that possibly the colon bacillus is the result of a secondary infection and that its profuse growth rapidly kills off the principal pathogenic bacteria, namely the pyogenic cocci. This idea receives strong support in the recent study of the bacteriology of 100 cases of acute appendicitis by H. C. Low.[1] He made his cultures on Löffler's blood-serum. Agar plates, commonly used by many previous investigators, were found to be unreliable because they did not show cultures of all the organisms present. Streptococcus pyogenes or micrococcus lanceolatus was present in 79 per cent. of the cases, the colon bacillus occurred in 81 per cent. In cases under three days' duration the streptococcus was present in 81 per cent. and the colon bacillus in 62 per cent. In chronic cases the colon bacillus becomes more common, suggesting that its presence means secondary infection. It therefore seems probable that the streptococcus and allied pyogenic organisms are the essential factor in acute appendicular abscess and that the profuse growth of colon bacilli and other intestinal bacilli outgrow the cocci. One reason why other observers have found colon bacilli only in such large percentages of the cases is very likely the exclusive use of agar and bouillon media, which do not permit the growth of streptococci as well, by far, as blood-serum.

THE TONSILS AS A PORTAL FOR RHEUMATIC INFECTION.

Although a specific etiologic factor has not yet been isolated, it is generally agreed that acute rheumatism is an infectious disease, and it has of late more especially been pointed out that the tonsils often constitute the portal of entry. Whether any etiologic relation exists between acute, subacute and chronic rheumatism is a matter concerning which more doubt exists. It is possible that acute rheumatism proper, apart from various forms of infective arthritis, is a specific disease of uniform etiology, although it is held by some that it is really a variety of mild, attenuated pyemia. The other varieties of so-called rheumatism, it is suggested, may be due to a modification of the same infective process; or, at times, at least, they may not be rheumatic at all in the specific sense. The tonsils seem to have been the portal of entry not only for the articular infection, but also for myocardial infection; and possibly other apparently cryptogenetic processes owe their origin to this source. Nor is it necessary, as it appears, for the intermediating tonsils to be the seat of macroscopic or even microscopic disease. Further, the tonsillar affection may be some days old, and even recovered from, before the secondary complicating conditions make their appearance. At times the rheumatic manifestations proper may be so slight or transient as not especially to attract attention. Bruck[2] points out that an analogous mechanism may explain some of the cutaneous exanthems believed to be of rheumatic character, such as nodose erythema, multiform exudative erythema, and rheumatic purpura or peliosis, and he reports four cases in which rheumatic purpura was observed in association with tonsillitis. In all, the symptoms of the former followed almost imediately on those of the latter, although the difficulty in swallowing in three was so slight as to be almost unnoticed. In the remaining case the anginal symptoms were pronounced and articular effusion and petechiæ were observed to develop as the former subsided. In two cases there was also articular and muscular pain in the neck, the back and the upper extremities.

1. Medical and Surgical Reports of Boston City Hospital, 1900, 11th ser., 173-178.
2. Berliner Klin. Woch., 1900, No. 45, p. 1005.

THE RELATIONS BETWEEN ACUTE AND CHRONIC ARTICULAR RHEUMATISM.

While arthritis confined to a single joint, or involving a greater or lesser number of joints in varying distribution, may be due to a number of causes, acute articular rheumatism is to be looked on as a specific infectious arthritis whose etiologic factor, however, has not yet been positively identified. In the same way chronic rheumatism may be due to a multiplicity of causes and the question has been raised whether there is really any relation between the acute and the chronic articular disorder. Finally, subacute rheumatism occupies a scarcely less anomalous position. There seems to be a growing belief that often the three disorders named are unrelated, although agreeing clinically in some respects. Weisz,[1] on the other hand, contends not only that the acute and chronic articular forms possess certain features in common, but also that there is no material anatomic, clinical or etiologic distinction between chronic articular rheumatism and deforming arthritis. In the opinion of this observer, the commencement of chronic articular rheumatism can often be traced to an attack of acute polyarthritis. Although bacteria have been found in the joints in cases of both acute and chronic articular rheumatism, no one has, as yet, been agreed on as the exciting agent in either disease. Further, while fever is more commonly present and is more marked in cases of acute than in cases of chronic rheumatism, exceptions to and reversals of this rule occur. In addition, acute rheumatism is the more frequent in the young, chronic rheumatism in the old, and the former are the more susceptible to influences that cause elevation of temperature. As a rule, there is no essential difference between the anatomic alterations attending acute and chronic rheumatism. It appears that in the young, in whom acute rheumatism is the more common, the endocardium especially exhibits a tendency to permanent disease; while in the old, in whom chronic rheumatism is the more common, the articular capsule exhibits such a tendency; and the opinion is expressed that such differences as exist between acute and chronic rheumatism are of degree and not of kind, and are related in part to variations in age. This fact may explain the greater frequency with which chorea is associated with acute rheumatism. Among less common symptoms it is pointed out that cutaneous edema, rheumatic nodules, rheumatic perineuritis, changes in the cartilages and bones, attend both the acute and the chronic disease.

1. Deutsches Archiv f. klin. Med., lxviii, H. 1 u. 2, p. 95.

CURABILITY OF SCOLIOSIS.—K. Port says that when the growth of the bones has ceased any attempt at correction of curvature of the spine is absolutely hopeless.

Medical News.

ALABAMA.

DR. J. W. WILLIAMS, of the Wooley Springs region, was shot and seriously wounded December 10, but is now expected to recover.

THE BILL appropriating $25,000 to the Alabama-Bryce Insane Hospital at Tuscaloosa for the purpose of completing the department for negroes at Mount Vernon, referred to in a recent issue of THE JOURNAL, was passed by the senate without a dissenting vote.

SIX MOBILE PHYSICIANS, Drs. Charles A. Mohr, James G. Thomas, Vivian P. Gaines, Rhett Goode, city health officer; Paul J. M. Acker, county health officer, and L. Van Es, members of the board of health, at the request of the Mobile city council, have visited New Orleans and investigated the methods employed in that city for the inspection of meats and milk.

REPRESENTATIVE S. J. GRIFFIN, of Cullman county, has introduced in the Legislature a bill which seeks to regulate the practice of medicine in the state. The bill makes it a misdemeanor for any person to treat disease without having a license from a board of medical examiners authorized by law, and fixes the penalty at not less than $100 nor more than $500.

CALIFORNIA.

IN BAKERSFIELD, 8 new cases of smallpox from two foci were discovered December 31.

DR. WILLIAM B. LEWITT has been named as member of the San Francisco Board of Health, vice Dr. Louis Bazet, resigned.

THE CLASS TOWEL in schools has been tabooed by Health Officer Todd, of Oakland, who insists on individual towels for school children.

DR. LELAND E. COFER, U. S. M.-H. Service, who has served as quarantine officer at Port Los Angeles for some time, has been assigned to the charge of the marine-hospital at Honolulu, H. I.

ASSISTANT SURGEON-GENERAL J. H. WHITE, U. S. M.-H. Service, is in San Francisco investigating the charges made by certain newspapers of the city against Quarantine Officer Kinyoun.

DR. H. B. STEHMAN, Los Angeles, has received a handsomely engrossed, morocco bound, copy of resolutions recently adopted by the board of managers of the Presbyterian Hospital, Chicago, in accepting his resignation as superintendent after fourteen years' service in that position.

GEORGIA.

THE DEATH-RATE of Atlanta for 1900 was 14.73 per 1000; for 1899, 17.13 per 1000. Violence caused 8.57 per cent. of the 1930 deaths during the year.

"DR." C. R. KING, of the "New Medicine Company" of Atlanta, has been fined $100 and costs by Judge W. T. Newman, of the United States Court for sending obscene matter through the mails.

COUNCILMAN DR. THOMAS D. LONGINO, Atlanta, proposes to substitute for the present system of seven ward physicians at a salary of $50 per month each, a health officer with the requisite number of assistants.

ILLINOIS.

THE CITY PHYSICIAN of Springfield, Dr. Archie W. Barker, reports that during the last year he had prescribed for more than 1500 patients and had made more than 600 visits.

AN INFERNAL MACHINE addressed to Dr. Sylvester A. Coffman, Hume, was received by his brother a few days ago. Fortunately the mechanism had become disarranged and no explosion occurred when the box was opened.

THE GOVERNOR in his message recommends the enactment of a law making boards of county commissioners boards of health in their respective counties. He also recommends legislation for the establishment of a sanitarium for the treatment of tuberculosis.

SMALLPOX is reported at Fountain Green, Hancock county, 3 cases; Granite City, Madison county, 12 cases with 3 deaths; Collinsville, Madison county, 3 cases; and Bellaire, Crawford county, 1 case. Bloomington is combating an invasion of the disease, which is said to have been brought to the city from Missouri by the colored crew of a work-train.

Chicago.

SECRETARY GAGE has sent to Congress a request for $20,000 to be used for improvements at the United States Marine-Hospital.

BY THE WILL of MRS. Aurelia R. King, relict of Henry W. King, which was filed for probate, January 7, the Presbyterian Hospital receives $1000.

ABOUT 75 applicants for certificates to practice medicine or midwifery in Illinois were examined by the State Board of Health, January 9, 10, 11 and 12 at the Great Northern Hotel.

THE Commissioner of Health desires to secure reports of the Chicago Health Department for the following years: 1870-3, 1876, 1877, 1879, 1880, 1886, 1889, 1890. Address Dr. Arthur R. Reynolds, Room 2, City Hall, Chicago.

INVESTIGATION by the health department has disclosed that St. Anthony's Hospital, a private institution on Frankfort street, is being operated without a license. It was at this place that two patients died January 3 from asphyxiation by gas.

DR. CHARLES EBERLEIN, of the county asylum at Dunning, was fined $10 for contempt of court by Judge Baker, January 12, because he did not remain in court as a witness. He gave as reason that he had already been away from his duty two days, that he could not longer neglect his patients, and furthermore, that Superintendent Lange had ordered him not to appear. He was released after filing a bond for $500.

THE HEALTH DEPARTMENT states that pneumonia is reported as the cause of 161 out of the total 551 deaths recorded last week—an increase of 32 over the previous week's record and an excess of nearly 43 per cent. over that of the corresponding week last year. Never before in the history of the city has this disease been so prevalent and so fatal. The highest previous reported number of pneumonia deaths was in the week of Feb. 25, 1899, when 140 were recorded. The year 1899 was marked by a serious increase in the mortality from pneumonia. During the five years, 1894 to 1898, inclusive, the average yearly deaths from this disease numbered 2130; in 1899 there were 3438, and in 1900 there were 3389 such deaths—an average increase of 37.6 per cent. and the first twelve days of 1901 show an even higher rate of increase.

AN ANTI-SPITTING ORDINANCE, the second in the history of the city, was passed in the City Council, January 14. It is as follows: Whereas, Spitting on sidewalks, in public places and in public conveyances is detrimental to health, by reason of the danger of spreading contagious disease, and is also a public nuisance which should be abated, therefore, Be it ordained by the City Council of the city of Chicago, that no person shall spit on any public sidewalk or on the floor of any public conveyance, or on the floors of any theater, hall, assembly room or public building; that any person violating the provisions of this ordinance shall on conviction be fined in a sum of not less than $1 nor more than $5; that this ordinance shall be in effect from and after its passage and approval by the mayor.

THE SMALLPOX SITUATION is substantially unchanged. The 19 new cases discovered during the week were, without exception, persons who have never been vaccinated or at some period so remote that the vaccination had lost its protective power. Susceptibility to the contagion of smallpox differs in individuals, and the same is true as to the protection of vaccination. As a rule, a successful vaccination in infancy or early childhood, followed by a successful revaccination at 14 or 15 years of age, confers an absolute immunity from smallpox during life. In a certain number of cases, however, probably 2 per cent., the vaccinal protection is exhausted sooner and the individual is then liable to contract smallpox on exposure. There is no other known method of determining when this occurs or who these susceptibles are except by the test of re-vaccination; if this "takes" in a given individual it is certain that such individual would have "taken" smallpox or varioloid, if exposed to the contagion.

INDIANA.

ELKHART COUNTY pays $100 a year for the care of the sick in its asylum to Dr. Metius M. Eckelmann.

ST. EDWARD'S HOSPITAL, New Albany, is to be paid $625 a year for two years by order of the city council.

SIXTEEN APPLICANTS for licenses to practice medicine appeared before the State Board of Medical Registration and Examination, at Indianapolis, January 8.

DR. I. WRIGHT SHORT has been appointed surgeon of the Lake Shore and Michigan Southern Railroad at Elkhart, vice Dr. William E. Bowman, resigned.

A BILL, inspired by the spread of the "Dowie" heresy in Lake county, will be introduced in the state legislature. It is designed to protect young children from the fanaticism of their parents who may desire to have them treated by "faith-cure"

methods. The bill provides that every parent shall employ a registered physician for children under the age of 16, and also provides serious penalties for negligence or violation of the law.

IOWA.

DR. G. ALLEN STAPLES and wife, Dubuque, have returned from Europe.

DR. FRED W. POWERS, Reinbeck, has been appointed a member of the State Board of Health to succeed Dr. Joseph A. Scruggs, Keokuk, whose term has expired.

THE FACULTY of the medical department of the State University at Iowa City has voted to increase the length of the college term from six to nine months, the new provision to become effective September 1.

THE STATE BOARD OF HEALTH, believing that the wide spread of smallpox in the state is due, in part at least, to the failure of physicians to make diagnoses and to enforce quarantine, has promulgated an order that physicians who fail to comply with the regulations will be cited to appear before the State Board of Medical Examiners and show cause why their certificates should not be revoked for incompetence or wilful violation of the rules of the board.

KENTUCKY.

DR. MELVIN H. WHEELER, Falmouth, had a paralytic seizure, January 1.

DR. W. E. CLARK, Sturgis, has been found guilty of performing criminal abortion, and has been sentenced to imprisonment for ten years.

Louisville.

DR. WILLIAM R. BLUE, Louisville, has recently returned from a several months' visit to Europe, accompanied by Mrs. Blue.

THE GRAY STREET INFIRMARY, Louisville, has made large additions to its building, increasing the number of rooms and adding a new operating room.

THE MEDICAL department of Kentucky University has built two large lecture amphitheaters adjoining the main building, giving needed laboratory room in the main building.

THE ANNUAL SESSION of the three spring and summer medical schools began January 1 with large classes. The four years' course has not seemed to diminish the attendance at any of the colleges.

THE HOME FOR FRIENDLESS WOMEN has elected the following medical staff: Dr. Ewing Marshall, chairman; Dr. Henry E. Tuley, secretary, and Drs. Walter F. Boggess, Philip F. Barbour, R. Lindsey Ireland, and Hugh N. Leavell. Drs. Frank C. Simpson and Louis Frank have resigned from the staff.

DR. J. E. CASHIN has been selected by the Louisville General Council special committee on sanitary affairs to make a chemical and bacteriological examination and report whether or not the water-supply of Louisville is contaminated by sewage from the Lakeland Asylum, which flows into the river via Goose Creek. The city will pay $500 for the work.

THE APPORTIONMENT of service at the City Hospital was made January 1: January and February, the faculty of Kentucky University Medical Department; March and April, Hospital College of Medicine; May and June, Kentucky School of Medicine, July and August, non-school members of the profession; September and October, University of Louisville, Medical Department, and November and December, Louisville Medical College.

DR. DUDLEY S. REYNOLDS, Louisville, according to the *Louisville Monthly Journal of Med. and Surgery*, has obtained a verdict of $9,166.66 damages against the Louisville & Nashville railroad for injuries sustained from a lump of coal which fell from a coal car of an express train, as it passed the platform on which he was standing, striking him in the abdomen, just above the pubes, and inflicting injuries from which he is still suffering.

LOUISIANA.

DR. C. PEARL MUNDAY has been appointed assistant local surgeon of the Southern Pacific Railroad at Westlake.

DR. CYRIAQUE J. GREMILLION, shot and killed Dr. S. D. Beville, at Alexandria, January 7, as a result of a quarrel over a patient.

JAMES GIBBONS, an interne at the Charity Hospital, New Orleans, died January 1 from hemorrhage and shock resulting from a gunshot wound received in a fight with footpads.

THE SUIT against Dr. Oscar Lanng, New Orleans, for $10,106 damages for "negligence and want of skill" whereby Oscar Stern lost the sight of an eye, has been decided in favor of the defendant, the court finding that the loss of sight in the eye was not proved to have resulted from any fault of Dr. Lanng.

IN SPITE of its poor supply of funds from the city budget, the New Orleans Board of Health continues its work. With the help of a temporary 20 per cent. reduction in the official salaries and a residue of $300 from last year's funds, nine inspectors will be retained for the time being on full pay.

MASSACHUSETTS.

LOWELL GENERAL HOSPITAL is to receive $5000 from the estate of Mrs. Julia A. Simpson, of Lowell, the income from which is to be used for the maintenance of a free bed.

THE BOSTON CITY COUNCIL has approved the following appropriations for the hospital department: $100,000 for a surgical out-patient department building; $120,000 for a new isolation ward and $46,500 for sundry repairs and improvements.

THE NEW BUILDING of the Boston Medical Library, which is exceeded in size only by the College of Physicians, Philadelphia, and the New York Academy of Medicine, was dedicated January 12. It is attractive in architecture, and is finely appointed, the cost thus far being $140,000.

MICHIGAN.

ATTORNEY-GENERAL OREN has decided that townships must erect contagious-disease hospitals.

DR. FREDERICK B. WOOLSEY shot and seriously wounded A. L. Manly, Peamwell, during a quarrel, January 10.

SMALLPOX has been stamped out at Saginaw. The last patient has been discharged from the isolation hospital.

A RUMOR is prevalent that Dr. Jacob S. Shoemaker, of New Lothrop, who left there several months ago for South America, contracted yellow fever at Panama, and died there.

DR. VICTOR C. VAUGHAN, Ann Arbor, has been appointed a member of the State Board of Health, vice Prof. Delos Fall, Albion, resigned, and was present at the meeting, January 11.

DURING THE last three months of 1900, cholera morbus, typhoid fever and scarlet fever were more prevalent, and erysipelas, intermittent fever, remittent fever, pneumonia and whooping-cough less prevalent than usual in the state, as compared with the corresponding periods of the last decade.

MISSISSIPPI.

THE TOM FRANKLIN HOSPITAL, connected with the Industrial Institute and College, Columbus, was formally opened December 20.

DR. THOMAS D. ISOM, Oxford, the oldest practicing physician in Mississippi, has resigned his position as surgeon of the Illinois Central Railroad.

DR. JOSEPH T. WARE, Starkville, shot and killed J. B. Hull, at Ackerman, January 1. Dr. Ware has been bound over under a bond of $2000, to await the action of the grand jury.

DR. JOHN E. HUNTER, secretary of the state board of health, reports that county health officers complain that it is impossible to prevail upon the county boards of supervisors to make adequate provision for handling the smallpox epidemics in certain localities. A report from Holmes county shows a total of 12 deaths out of 18 cases, all of them being negroes.

MISSOURI.

THE ST. JOSEPH City Council has authorized the erection of a new isolation hospital.

DR. DAVID R. PORTER, Kansas City, has been appointed a member of the board of pension examiners, vice Dr. Chett McDonald resigned.

SMALLPOX is reported in more than 100 counties in the state, and the quarantine measures thus far taken have failed to stop the spread of the disease.

DR. JAMES C. SMITH, Agency, has been appointed second assistant at the State Hospital for the Insane, No. 2, St. Joseph, to succeed Dr. Charles B. Simcoe, who resigned December 31, to take charge of the Missouri colony for the feebleminded and epileptic at Marshall.

DR. EDWIN E. HUNTER, St. Joseph, assistant city physician, has addressed a communication to the Board of Health urging that all children attending the public schools be vaccinated, as a precautionary measure, because smallpox is epidemic in several neighboring cities.

THE STATE BOARD OF HEALTH has elected Dr. C. B. Elkins, Ozark, president; Dr. J. T. McClanahan, vice-president, and Dr. E. C. McElwee, secretary. Dr. S. C. James, Kansas City, introduced a resolution rescinding the action of the July meeting of the board in Kansas City in 1899, thus making it necessary for the board to recognize the diplomas of all colleges who matriculated students in 1898, and who graduated at the end of the scholastic year of 1901 and to register or license those graduates of any college having a three-year course.

A SYSTEMATIC CRUSADE of compulsory vaccination was begun in Kansas City, January 10, by physicians in the employ of the city. Dr. G. O. Coffin, city physician, has divided the business part of the city into six districts, and a physician has been detained to have charge of each district. Each physician is to

make a house-to-house canvass, and every person who can not show a good scar must be inoculated. Smallpox continues to gain headway in spite of the precaution, and more than 100 cases are now said to exist in the city.

AN AMENDMENT to the law regulating the practice of medicine will be introduced by Senator Rollins of St. Louis, which provides that "any person holding himself or herself out to the public as maintaining an office at any given place in this state where he or she will treat the sick, and it shall be shown that said person does not actually, and in person, do so at the place represented; or that he or she is a non-resident of this state and does not in person practice the profession of medicine at the place represented, shall be by the board adjudged guilty of unprofessional and dishonorable conduct in the meaning of the preceding section, and it shall be the duty of the State Board of Health to revoke the certificate or certificates held by any and all such persons."

MARYLAND.

DR. W. E. GRIMM, Patterson's Creek, W. Va., was arrested in Cumberland, January 3, on the charge of practicing medicine in Maryland without license and was bailed for a subsequent hearing. Dr. Grimm was the first physician to attend the smallpox patients at Pinto, Allegheny county, being constantly on the scene when another physician could not be obtained.

Baltimore.

DURING 1900, 10,700 persons died in Baltimore. This represents a mortality of 21.2 per 1000.

THE BOARD OF SUPERVISORS of City Charities has appointed Dr. Lindsay Peters resident physician of the insane department of Bayview Hospital, the city almshouse.

DR. WILLIAM RUFFNER STOVER, resident physician of the Baltimore University Hospital, has resigned to commence private practice, and Dr. William D. Bacon, assistant physician, succeeds him.

THE FLINT CLUB, named in honor of Prof. Austin Flint, held its annual banquet on the evening of January 3, Sheriff John B. Schwatka, M.D., being the presiding officer and toastmaster. The club was organized sixteen years ago by five physicians of this city.

NEBRASKA.

OMAHA has two cases of smallpox, and Lincoln one case.

DECATUR, a town of 600 inhabitants, is reported to have 416 cases of smallpox.

DR. ALEXANDER YOUNG, Arcadia, has been appointed by the governor, assistant physician at the State Hospital for the Insane, Norfolk.

THE SUPREME COURT of the state having decided adversely to the appeal of C. W. Little, a practitioner of osteopathy, he threatens now to carry the case to the United States Supreme Court for redress. His attorneys claim that by the decision the appellant has been deprived of his rights under the fourteenth amendment.

NEW JERSEY.

DR. CHARLES B. SMITH has been appointed surgeon of the Lackawanna railroad at Washington.

NOW THAT the danger of an epidemic of diphtheria is over, the health committee of the Elizabeth City Council boldly refuses to approve the bills for the expense incurred by the board of health in checking the disease.

DR. CHARLES V. BURKE, Newark, who sued Justice James J. Brylan, to recover $210, the amount agreed upon by telephone for an operation on the defendant's brother, was non-suited, the court holding that a telephone agreement was not binding.

IT IS CLAIMED that at the present time there are no funds available for the payment of current expenses of the Burlington County Hospital, Mt. Joy, in consequence of which this institution may be closed; $2000 is needed to continue the work.

THE TRADE COUNCIL of Bridgeton has decided to make a donation of $10,000 to the Bridgeton Hospital. It has been decided to raise this amount by having every member of the federation, mechanics, sales-people, and laborers, give half a day's wages toward the fund.

SCARLET FEVER is prevalent at Vineland, Swainton and Court House, Cape May County, where the schools have been closed and services at the churches have been suspended, and diphtheria at Folsom, where all churches and schools are to remain closed until all danger is over. La grippe is epidemic at Princeton, where 200 cases are reported.

THE FOLLOWING PHYSICIANS were elected by the board of trustees of the Cooper Hospital of Camden, January 8: Medical staff, Drs. William A. Davis, E. L. B. Godfrey, William R. Powell and H. Genet Taylor; surgical staff, Drs. Daniel Strock, Joseph L. Nicholson, Paul M. Mecray, and Edward A. Schellenger; ophthalmologist, Dr. William R. Powell; gynecologists, Drs. Dowling Benjamin and Joseph S. Baer; pathologist, Dr. Walter S. Bray; laryngologist, Dr. Ernest S. Ramsdell. During the past year 644 patients were admitted to the hospital: of this number 63 died and 251 were discharged, cured.

NEW YORK.

HEALTH OFFICER MOORE, of Syracuse, has issued an order for the compulsory vaccination of scholars in the public, private and parochial schools of the city.

ELMIRA has 1500 cases of grip, Binghamton 2000 cases, with 50 of typhoid, Albany 500, and cities and towns throughout the state are equally affected.

THE BEAHAN HOSPITAL has been incorporated at Canandaigua, with a capital stock of $10,000 and the following board of directors: Drs. Albert L. Beahan, Matthew R. Carson, Orlando J. Hallenbeck, John H. Jewett, Frederick E. McClellan and Harry C. Buell.

A MOVEMENT is on foot to establish, through private subscriptions, a sanatorium in the Adirondacks for working women, young married women and children suffering from consumption. A committee has been organized, of which Mrs. George F. Shrady is president. The sanatorium is to be located at Lake Kushaqua.

A NEW LUNACY BILL has been drawn up by Drs. Nelson H. Henry and John H. Girdner for presentation to the legislature, which provides that every judge to whom application is made for the examination of a supposedly insane person, shall designate a referee, and that it shall be the duty of the latter to be present at the examination conducted by the medical experts and certify as to its regularity. The bill also provides that to be eligible for the position of medical examiner in lunacy one must have had at least two years' experience in the care of the insane.

THE STATE FOREST PRESERVE BOARD and the State Board of Health have at last agreed and approved the site already recommended by the trustees for the State Hospital for the Treatment of Incipient Tuberculosis, at Raybrook, three miles southeast of Saranac village, on the side of a hill, where the hospital will be well protected from the prevailing winter winds. There are in all 525 acres, the cost of which to the state has been fixed at $7500. Most of the adjoining property already belongs to the state. There is an ample water-supply, and the place is accessible by the New York Central railroad, and by the Chateaugay branch of the Delaware and Hudson railroad. Only $1000 of the $50,000 appropriated last winter has been expended. It is intended that the hospital shall accommodate 200 patients.

Buffalo.

WORD HAS been received by Dr. Jacob S. Otto, superintendent of the sanitary exhibit of the Pan-American Exposition that all the exhibits made by the United States in the department of hygiene at the Paris Exposition will be sent to Buffalo.

AT THE annual meeting of the active members of the Sisters Hospital the following officers were elected for the ensuing year: Dr. Lawrence G. Hanley, president; Dr. Henry C. Buswell, vice-president, and Dr. Nelson W. Wilson, secretary.

THE CENSORS of the Erie County Medical Society have singled out the case of William Carpenter, who was acquitted by the grand jury of illegally practicing medicine and recommended that in consequence of this acquittal it would be advisable for the society to favor an amendment to the law relating to fines, whereby they shall be paid hereafter to the county treasurer instead of to the treasurer of the society. The censors understood that the existing arrangements concerning fines had been conducive to Carpenter's acquittal. They also asked for authority to employ detectives to continue the work of collecting evidence in the cases of illegal practitioners.

New York City.

A TUBERCULOUS PAVILION, capable of accommodating 200 patients, was opened at Bellevue Hospital, January 1. It is in charge of three graduate nurses and the house staff.

DR. HERMANN KNAPP has given to the New York Ophthalmic and Aural Institute, with which he has been long prominently connected, an adjoining plot of valuable land, with a commodious building.

AT THE annual meeting of the Beth Israel Hospital it was stated that the new building is nearly completed, and that when finished it will represent an expenditure of about $200,000. The total donations to the building fund so far amount to $40,000. During the past year 531 patients have been received into the hospital, and 282 have been refused for lack of accommodation.

THE FRENCH CONSUL-GENERAL has returned from Europe after making application to the French government for $50,000

to assist in providing more extensive accommodations in the French Hospital of this city. The changes contemplated will cost about $200,000, the hospital now having room for only 60 patients. The French government has paid a certain amount annually to the hospital, but the increase in the French population has made the proposed changes necessary.

THE MONTHLY BULLETIN of the State Board of Health shows that there are outbreaks of smallpox in 17 places in the State. There had been no smallpox for three months prior to the close of November, and then a traveling troupe of colored minstrels exhibited at eight places in the eastern part of the state before it was discovered that there was smallpox among them. They touched the locality in which the smallpox made its appearance recently in New York City, and smallpox followed in their trail at Albany, Schenectady and Gloversville.

NINE MORE CASES of smallpox have developed in the city in the past week. Two of them were inmates of a lodging-house, and were the only ones there who had positively refused to allow the public vaccinators to vaccinate them. One of these, a man named Joyce, has probably been the means of spreading the disease quite extensively, for, he says that feeling ill and not knowing what ailed him, he went to Bellevue Hospital early in the morning, and was told that he had erysipelas. After receiving some medicine he was allowed to depart, and after wandering around for some time he walked across the Brooklyn bridge and into the office of the department of charities.

GRIP is very prevalent, and it is the opinion of the health authorities that a severe epidemic of this disease is imminent. Reports show that since the first death from grip was reported, Nov. 10, 1900, there has been a steady weekly increase, the total number of deaths to date being 62. Including the first and very fatal epidemic of grip, which occurred in the winter of 1890-91 there have been altogether up to the present time 3796 deaths from this disease in the Borough of Manhattan. At the present time it is estimated that not less than 4 per cent. of the population is suffering from grip, and the records of the police department show that about 10 per cent. of the police force is ill, for the most part with the grip. For the week ending Jan. 6, 1900, there were 8 deaths from the grip, while the corresponding week this year showed 36 deaths from grip in Manhattan and Brooklyn. Since that date more than 25 deaths from grip have already been reported.

OHIO.

DR. FRANK S. MERWIN, Youngstown, is seriously ill with typhoid fever.

DR. SETH W. BECKWITH, Toledo, ex-coroner of Lucas county, is seriously ill.

DR. BYRON C. HENDERSHOTT, New Philadelphia, has been appointed surgeon of the C. & M. railroad.

FOUR MEMBERS of the staff of the Mahoning Valley Hospital at Youngstown, Drs. Albert L. King, Charles D. Hauser, Albert E. Warren and Charles H. Slosson, have resigned, no reason being assigned.

THE STATE BOARD of Medical Examination and Registration held its annual meeting at Columbus, January 3, granted certificates to 7 applicants and elected Dr. Nathaniel R. Coleman, Columbus, president; Dr. H. E. Beebe, Sidney, vice-president; Dr. Frank Winders, Columbus, secretary, and Dr. D. Williams, Columbus, treasurer.

PENNSYLVANIA.

THE TRUSTEES of the Pennsylvania Medical College at Chester, have commenced the erection of a hospital for the use of the college.

DR. OLIVER J. BENNETT, Allegheny, has been appointed physician to the Western Penitentiary, vice Dr. David N. Rankin, deceased.

THE SIXTH ACCOUNTING of the estate of the late Asa Packer has been rendered and shows that the sum of $300,000 has been paid St. Luke's Hospital, Bethlehem.

A BILL is to be introduced in the state legislature, providing for the appropriation of $60,000 for improvements at the Allegheny General Hospital. The improvements contemplate the rebuilding, enlarging and modernizing of the institution.

SENATOR WENTZ and Assemblymen Barker, McGlathery and DeHaven have visited the State Hospital for the Insane and the Charity Hospital, Norristown, for the purpose of determining the needs of these institutions. The former has asked for an appropriation from the state of $90,000, and the latter for $35,000.

THE RESULTS obtained by applicants at the last examination of the Pennsylvania State Board of Medical Examiners, held on December 17, 18 and 19, have been forwarded to the Secretary of Internal Affairs at Harrisburg, and shows that out of 80 applicants for license to practise medicine 41 were qualified and 39 rejected. It is said that in past years the number of failures was not much above 15 per cent., and the rate of failures reported above means a higher standard imposed upon the candidate than was formerly the case.

Philadelphia.

DR. HENRY CATTELL, who for several years has been pathologist to the Pennsylvania Hospital, has resigned.

DR. JOHN W. KROSKEY, attending surgeon to the Wills Eye Hospital, has resigned and Dr. McCluney Radcliffe has been appointed his successor.

ON ACCOUNT of a death from smallpox in the neighborhood of Forty-first street and Girard avenue, considerable anxiety is shown lest a further spread of the disease will ensue. As a preventive measure a large number of persons in that locality have been vaccinated and the police have been called in to guard the infected house. This was the only case of the disease in the city.

THE ANNUAL meeting of the Germantown Hospital was held January 12, and the following officers were elected: Elliston P. Morris, president; Thomas B. Homey, secretary; William H. Haines, treasurer; Williston P. Morris, William H. Haines, Frank J. Firth, Frances Stokes, Reed A. Williams, Jr., Alexander W. Wister, William H. Scott, Thomas B. Homer, Dr. Norton Downs, Thomas H. Shoemaker, Henry L. Davis, N. Penrose Allen, Edward H. Vance, Dr. George Woodward and James Mape Dodge, board of managers.

OWING to the existence of a number of cases of smallpox in New York the Philadelphia Board of Health is taking unusual precautions to prevent its transmission here.

ABOUT the last week of December there was a great increase in the number of cases of "colds" in this city, which was later followed by an epidemic of grippe. In private practice and at the public dispensaries an increase in this disease has been noted. The weather conditions at the time of the onset of the malady did not seem to be what might be termed favorable, since the days were clear, and the temperature did not change to any marked degree. An increase in the number of cases of pneumonia has been also observed.

WASHINGTON.

DR. ELMER E. HEG has been appointed a member of the board of health of Seattle.

DR. CAL. M. BOSWELL, the pioneer physician of Colfax, was serious injured in a runaway accident recently.

DR. THOMAS E. HOXIE, Spangle, has been appointed assistant physician at the Eastern Hospital for the Insane at Medical Lake.

DR. GEORGE W. INGHAM, Olympia, has been appointed a member of the State Board of Medical Examiners.

THE STATE BOARD of Medical Examiners met at Seattle, January 2 and 3, and examined 52 men and 6 women applicants for license to practice medicine in the state.

GENERAL.

DR. EDUARDO WILDE, Argentine minister at Washington, will be a delegate to the Pan-American Medical Congress at Havana.

THE PHYSICIANS at Havana tendered a banquet recently to Dr. Carlos Finlay in token of congratulation that his theory of the transmissibility of yellow fever by the mosquito, which he has been proclaiming for many years in the face of opposition and ridicule, has at last received scientific recognition and acceptance.

DR. W. C. GORGAS, chief sanitary officer of Havana, states that a continuous improvement in the health of Havana is taking place. The little yellow fever they had in December was among the recently arrived Spanish immigrants. The general death-rate for December was the lowest for that month during the decade. In the report of the Marine-Hospital Service for the week ended Jan. 11, 1901, we find no deaths nor cases of yellow fever in Havana, 1 death at Cienfuegos, and 1 case at Matanzas, Cuba. Smallpox appears to be entirely absent.

THE FOLLOWING named asst.-surgeons in the army have been ordered to San Francisco for assignment to duty with troops destined to the Philippines: John H. Allen, Washington, D. C.; H. D. Brown, Denver, Colo.; W. F. Graham, Summerville, S. C.; Lawrence Mac McEvoi, St. Louis, Mo.; F. H. Mills, Buffalo, N. Y.; Joseph Pettyjohn, Augusta, Ga.; R. J. Price, Wilmington, N. C.; J. W. Reddy, Boston, Mass.; Shannon Richmond, St. Joseph, Mo.; A. R. Schier, Burlington, Ia.; A. T. Short, Montrose, Colo.; Robert S. Spilman, Washington, D. C., and T. H. Weisenburg, Philadelphia, Pa.

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DISPUTE OVER PHILIPPINE MEDICAL COLLEGE.

The decision of the Philippine Commission in the San Jose Medical College case unanimously refers the settlement of the questions involved to the courts and provides trustees who, with the assistance of the attorney-general of the Philippines, will inaugurate and prosecute the litigation. The sum of $5000 is the appropriation for the expenses of the suit. A bill has been passed carrying out the terms of the decision. It appoints five physicians as trustees, who are required to begin suit within a month in the supreme court of the Philippines to determine whether the ownership of the college is in the church or the government. The Dominican rector of St. Thomas' University and Archbishop Chappelle are required to defend the suit on the part of the church. Judge Taft's opinion says: "A case involving the construction of the Treaty of Paris and the effect upon public trusts of the transfer of sovereignty from a kingdom in which church and state are united and inseparable to one in which church and state are entirely separated is of such import that it ought to be submitted to the highest tribunal."

TO PREVENT SMALLPOX.

The spread of smallpox in the logging regions of Northern Wisconsin and Minnesota has resulted in a meeting in Duluth of members of boards of health of both states, with Secretary Bracken, of the Minnesota State Board of Health. The purpose was to decide, if possible, upon some uniform action best calculated to prevent the spread of the disease. It was decided that the only sure means of stamping out the disease is to encourage vaccination, force quarantine regulations and provide isolated hospitals at such points as may seem desirable under the circumstances. The shooting of the young woodsman at a lumber camp near Sparta, Minn., recently while trying to escape from a smallpox quarantine, had much to do with stirring the people to action. A number of the loggers who have camps on the Mesaba range were invited to attend the meeting, and they agreed to endeavor to have the men in their respective camps vaccinated. The physicians are working on some plan for allowing men in quarantine to work under special conditions. They would, under the plan proposed, be allowed to work during the quarantine period isolated from the other men in camp. The counties in which it is necessary to go to a great expense to restrict and stamp out the contagious disease will be asked to assist the towns in which the disease is being coped with.

PAN-AMERICAN MEDICAL CONGRESS.

Up to the present time—January 8—the best rates we have been able to secure for delegates attending the above congress are the regular winter tourist rates from all parts of the country to Havana and return, which from New York City is $98; Philadelphia, $94; Baltimore, $90; Washington, $88; correspondingly low rates from all other points in the United States. If my continued efforts result in lower rates, due advice will be given through THE JOURNAL. Delegates will have the option of traveling through Jacksonville, thence Florida East Coast Railway to Miami, and steamer to Havana and return; or through Jacksonville, thence Plant System to Port Tampa, and steamer to Havana and return. Steamers sail from Miami Sundays and Wednesdays at 11 p. m., arriving Havana 3 p. m. the following day. Steamers leave Port Tampa Tuesdays, Fridays and Sundays at 6.30 a. m., arriving Havana at 8 o'clock, the following morning. Inasmuch as the sessions of the congress open in Havana February 4, at 10 a. m., it seems that the route through Port Tampa, and the steamer leaving that port at 6.30 a. m., February 3, arriving Havana 8 o'clock following morning, is the best for the delegates to use. Having in mind, therefore, the comforts of the delegates, I would suggest that they arrange their trip so as to take the steamer leaving Port Tampa, 6.30 a. m., February 3. The train leaving New York at 3.25 p. m., February 1, over Pennsylvania Railroad; Philadelphia, 6.05 p. m.; Baltimore 8.27 p. m., and Washington 9:55 p. m., thence over Southern Railway through Charlotte, Columbia, Savannah and Jacksonville, which carries through sleeping cars to Port Tampa, and has dining car service, arriving Port Tampa 6. a. m., February 3, connecting with the 6.30 a. m. steamer for Havana. Through sleeping cars are also operated from Chicago and Cincinnati, through Chattanooga, Atlanta and Jacksonville, thence Plant System to Port Tampa, making the above connection. The steamer connection leaving Miami Sunday, February 3, reaches Port Tampa at 3 o'clock the following afternoon—too late for the opening session of the congress. The steamer *Seguranza* of the Ward Line leaves New York, January 30, arriving in Cuba on February 3, the day before the beginning of the congress. The new Ward Line steamer *Morro Castle*, holding 135 cabin passengers, leaves Havana on February 9, reaching New York February 11. The round trip is $70. Any one going via this route will be absent from New York twelve days. As these pages are going to press, the I. C. R.R., C. & N. W. Ry., and C. & E. I. R.R. companies consent to a reduction on rate to Havana and return; from Chicago, $86, and from other points in proportion.

FOREIGN.

SMALLPOX in Paris is gradually disappearing; there were 58 cases on January 5, compared with 105 the week previous.

PROF. V. SNEGUIREFF, of Moscow, completed thirty years of professional activity December 1. The anniversary was celebrated by his friends in many ways, among them being the founding of some scholarships and prizes in his name by funds collected by his pupils.

THE recently remodeled ophthalmic clinic at the Berlin university was reopened December 12, and bronze busts of Albrecht von Graefe and Carl Schweigger were unveiled with much ceremony.

DR. VELDE, the German physician at Pekin during the siege of the legations, has been presented with the cross of the French legion of honor, as also has his French companion, Dr. Matignon.

THE SAXON MINISTRY has issued a decree requesting physicians, boarding-house keepers and undertakers to report all cases of pulmonary tuberculosis. The decree requires also the disinfection of rooms in which persons die from that disease.

THE *Tidsskrift f. d. Norske Lægefor.* announces that a marble portrait bust is to be presented to the great Norwegian leprologist, Dr. G. Arnauer Hansen, on his 60th birthday, July 29, 1901.

A MONUMENT is to be erected by subscription to the eminent French surgeon, L. Ollier, whose death in his 76th year was recently mentioned in these columns. His international fame is chiefly due to his demonstration that experimentation on living animals is the most puissant element of progress in scientific surgery. He practically revolutionized conservative surgery by his studies of the growth and regeneration of bones and the artificial production of bone tissue by the preservation and transplantation of periosteum. Subscriptions for the monument are received by the French lay press and also by the *Revue de Chirurgie*, Paris, of which he was editor-in-chief, although he resided and practiced in Lyons.

DR. PIERRE CARL-EDOUARD POTAIN, one of the most prominent and popular physicians of Paris, died suddenly on the night of January 7, after pursuing his usual day's work and dining quietly with a few friends. He had long been professor of internal medicine and his occasional contributions to medical literature on the heart and other branches of internal medicine were accepted by authority, but his extensive practice interfered with much literary work. He was one of the founders of the *Bibliographia Medica*. His extreme kindness and gentleness won for him in the hospitals the title of "Saint Potain."

CANADA.

DR. T. M. FENWICK, Kingston, died January 3 as a result of blood poisoning engendered through paring a corn. He was graduated from Queen's University in 1866.

DRS. G. S. RYERSON and E. E. King, Toronto, succeeded in locating by the aid of a skiagraph and extracted a piece of steel chisel from a workman's eye, at the inner side of the optic nerve.

DURING the past summer a Philadelphia gentleman was taken ill while touring the Thousand Islands, and was brought to the Brockville General Hospital. He recovered, and the other day he showed his appreciation of the treatment received at the hospital by forwarding a check for $1000. The money will be used for the establishment of a nurse's home and children's ward in connection with the hospital.

THE *Bulletin Méd. de Quebec* publishes the following communication: "A little sister to the Quebec Medical Society has just been born in Portneuf county. The accouchement was long, tedious and difficult. Nine physicians were present when the child was born. It is feeble and delicate, but apparently viable. For fear of accidents it was baptized at once: 'The Medical Society of Portneuf County,' with Dr. G. Paquin as the godfather."

NATIONAL CONFERENCE ON CONSUMPTION.

The governor general and the Countess of Minto are calling a meeting in Ottawa of representative medical men and laymen from all parts of Canada for the purpose of discussing measures for limiting the ravages of consumption in the Dominion. Among other projects to be discussed is the formation of a

Dominion Association with branches in each city or province for dealing with the question; then grants by the Dominion government will also be taken up for providing sanatoria or suitable homes for the cure of persons afflicted with tuberculosis. All the provincial governments will be asked to send representatives, as well as the mayors of the larger cities, and the secretaries of the provincial boards of health. Canada is losing eight or nine thousand lives every year by consumption; and according to the general accepted estimate of statisticians, the country is paying a cash tribute of eight or nine million dollars to tuberculosis.

M'GILL'S ANNUAL LECTURE.

"A Century of Chemistry" was the title of the annual lecture at McGill, which this year was recently delivered by Dr. J. Wallace Walker. He traced the development of chemistry during the past one hundred years. At the beginning of the nineteenth century a controversy was going on as to the importance of the laws of equivalent weights. When experiment finally confirmed this law, the science took a position second to none in the world of science. Dalton's great atomic theory was also enunciated at that time and with slight modifications remains the same at the present day. The biological world had also supplied the chemist with a store of material; and the substances obtained as products of vital processes were referred to. Heating by chemistry was dealt with and one of the interesting features of the lecture was the reference to the work of a Canadian, Willson, in this line. Willson has brought on the market a new product of great value—calcium carbide. This is a gray stony-looking substance made from lime and charcoal, and possesses the remarkable property of reacting chemically with water and giving off acetylene gas, which burns with a very brilliant flame.

MEDICAL DEFENSE.

The St. Francis District Medical Association of the Eastern Townships of the Province of Quebec has recently elected the following officers: President, Dr. Brown, Richmond; vice-president, Dr. Stevenson, Coaticook; second vice-president, Dr. Rioux, Sherbrooke; secretary-treasurer, Dr. W. Russell Thomas, Lennoxville. These officers have been elected *pro tempore* by the parent association, and are to conduct the medical defense part of the association. This union is now endeavoring to gain the support of the medical profession throughout the length and breadth of Canada. Dr. Roddick, M.P., is being approached to secure a Dominion incorporation for it; and physicians will be admitted from every province at a small annual fee. The objects of this defense association are to support and protect the character and interests of medical practitioners practicing in the Dominion of Canada; to promote honorable practice, and to suppress or prosecute unauthorized practitioners; to advise or defend or assist in defending members of the union in cases where proceedings involving questions of professional principle or otherwise are brought against them; and to originate legislation likely to benefit the medical profession. A determined effort will be made to acquire legal powers for these objects.

LONDON LETTER.

AN IMPERIAL PHARMACOPEIA.

The general medical council who issue the British Pharmacopeia have taken a step which is not only of medical but political importance. They have converted the British into an imperial pharmacopeia. At one time there were three pharmacopeias in the United Kingdom which were issued by the Colleges of Physicians of London, Edinburgh and Glasgow respectively. They each constituted a legal standard, according to which, in the corresponding division of the kingdom, all preparations had to be made. Obviously considerable inconvenience arose when, say, an English pharmacist had to make up a Scotch prescription, for the preparation varied in strength in the different countries. The formation of the British Pharmacopeia by the fusion of the three local pharmacopeias was thus a great reform. The council usually issue every 10 years a new edition of the Pharmacopeias introducing new drugs and preparations of sufficient importance and rejecting others, which have fallen into desuetude. Now, many medicinal plants and other substances are considered valuable in the colonies and India, but are unknown in England. These are often equivalent to substances in the British Pharmacopeia which are very expensive or difficult to obtain in the particular locality. For example, in India there are several native vegetable oils which may be used in place of olive-oil, and there are plants which can replace others which it would be expensive to import. Hence the importance of ensuring that these substances should be prepared in a proper manner and made to conform to a uniform standard. A committee has been engaged with the assistance of the Indian and Colonial governments in procuring from all parts of the empire the necessary information from medical practitioners and scientific societies. The first result has been the publication of an Indian and Colonial addendum containing the necessary details with regard to plants or substances which in the country yielding them may be employed as stubstitutes for others in the British Pharmacopeia.

LONDON'S VITAL STATISTICS—THE LOWEST BIRTH-RATE ON RECORD.

A declining birth-rate which furnishes a chronic theme for lamentation to French politicians, appears to be becoming a phenomenon of every civilized nation. The report of the medical officer of health for London for the year 1899, which has just been issued, shows that a diminished birth-rate is a feature not only of London but of the whole of England and Wales. The number of births in London in the year 1899 was 133,585, giving a birth-rate of 29.3 per 1000, the lowest on record. From 1851 till 1860 the birth-rate was 33.6; 1861-70, 35.4; 1871-80, 35.4; 1881-90, 33.2; 1897, 30; 1898, 29.4; 1899, 29.3. Thus an almost steady decline is shown in the last 50 years. The marriage-rate during this period shows an almost parallel decline. From 20.6 in 1851-60 it has steadily fallen to 17 in 1894; it then rose slightly, reaching 18.7 in 1898, but again fell to 18.4 in 1899. The death-rate in the last half century has also shown a similar diminution. In the successive decennial periods from 1841 till 1890 the death-rates were 24.8, 23.7, 24.4, 22.5, and 20.5. In the successive years from 1891 till 1899 they were 21, 20.3, 21, 17.4, 19.5, 18.1, 17.7, 18.2, and 19.3.

NEPHRITIS WITHOUT ALBUMINURIA.

At the Clinical Society Dr. W. P. Herringham described a case of this rare condition, the first on record, in which the existence of nephritis without albuminuria in the absence of scarlatina of nephritis has been proved by necropsy. Several cases are recorded of nephritis without albuminuria following scarlatina, and the existence of albuminuria without nephritis in the absence of scarlatina has been suspected. A boy aged 4 was admitted to hospital for diarrhea and vomiting on March 29. After he was supposed to be cured he was sent to a convalescent home. The urine was examined three times and found normal. There was no history of scarlatina. From May 5 till July 14 he was in good health at the convalescent home and was under constant medical supervision. On July 14 dropsy began in the feet and spread to the legs. The urine was not albuminous. He was sent back to the hospital and for the next six weeks he looked a picture of subacute nephritis, but there was never albumin in the urine, which was exceedingly scanty. No formed elements were ever visible under the microscope. On August 29, he died. At the necropsy the viscera, including the kidneys, appeared natural. But microscopic examination of the kidneys showed cloudy swelling in a few of the convoluted tubes, and albuminous plugs in many; in some of the collecting tubes similar plugs were seen. An exudation apparently of serum or albumin was found in almost all the glomeruli.

INDENTATIONS IN THE SKULL OF THE NEWBORN.

At the Edinburgh Obstetrical Society Dr. Munro Kerr, of Glasgow, read an important paper on this subject and described a new method for the relief of the condition. The subject has received very little attention in this country, but in France it has been the subject of numerous treatises ever since Ambrose Paré first described the deformity. Indentations of the fetal skull may be spoon- or furrow-shaped. The latter are much the less serious and seldom cause much immediate trouble. Dr. Kerr, therefore, considered exclusively the spoon-shaped depressions. The injury is usually situated on one or other of the parietal or frontal bones near the anterior fontanelle. It occurs with few exceptions when there is deformity of the maternal pelvis, and generally in cases of flat rachitic pelves. The extent of the deformity need not be extreme; most commonly it is just sufficient to cause a moderate degree of obstruction to the passage of the head. In the great majority of the reported cases delivery was completed by traction either on the head by forceps or on the trunks in breech presentations. But in a small proportion labor terminated spontaneously. When deformity is present the indentation is usually caused by the head being pressed against the projecting sacral promontory. Occasionally the anterior pelvic wall, an undue prominence of the iliopectineal eminence, an osseous tumor, is the cause. Defective ossification of the fetal skull predisposes to it. In most cases the indentations disappear in a week or two and give rise to no symptoms. In some, permanent depressions result which may produce no disturbance or may give rise to minor nervous storms. Some cases terminate fatally.

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with twitchings, convulsions and paralysis. In others the child is born asphyxiated and dies unless the depression is removed. Schroeder in 65 cases found that 34 per cent. of the infants were stillborn and that 15 per cent. subsequently died. In treatment air-pumps and cupping glasses have been advocated. Trephining has been successfully performed. But surgical influence is not always practicable. Dr. Kerr has treated three cases successfully by the following method. The fetal bones are very resilient and by experiments he found that artificially produced depressions can be raised by firm antero-posterior compression of the head. On the living child the indentation came out with a sound as when a dent in a felt hat is removed. In one case the seriously impaired respiration was at once relieved.

Correspondence.

Prof. Loeb and Newspaper Sensationalism.

CHICAGO, Jan. 12, 1901.

To the Editor: In view of the fact that my name has been used in a number of sensational articles which have appeared in the daily papers, I wish to state that none of these articles were authorized by me. The results of my experiments have been published exclusively in scientific journals, and I am only responsible for such statements as are expressed in my scientific publications.

JACQUES LOEB,
University of Chicago.

Book Notices.

TREATMENT OF FRACTURES. By Charles Locke Scudder, M.D., Surgeon to the Massachusetts General Hospital. Assisted by Frederick J. Cotton, M. D. With 585 Illustrations. Cloth; pp. 433. Price, $4.50. Philadelphia: W. B. Saunders & Co. 1900.

Although the title of this work is "The Treatment of Fractures," it will be found that the text is by no means so limited as the title, but deals in general with fractures, as the causation, pathology, diagnosis and prognosis are all discussed and often more extensively than is the treatment.

In the opening chapter on fractures of the skull are found a number of short, but valuable points on head injuries in general and on injuries to the brain complicating fractures of the bone. Under the treatment of skull fractures, he says: "In fracture of the base with pronounced symptoms, drainage of the fossa involved, whether anterior, middle or posterior, should be considered." No mention is made, however, of the symptoms which would warrant or indicate such a procedure, nor of the method of executing it nor of the probabilities of it doing any good if attempted. The danger in these cases lies in the injury done to the brain tissue and not in the fact that the fracture extends to the base of he skull.

Under the examination of injuries of the elbow, he says: "In the absence of positive signs of dislocation, subluxation and fracture, the lesion is a sprain or contusion. In the absence of positive signs of dislocation and radical subluxation a fracture will be present." The latter statement, particularly, is not only peculiar reasoning, but also incorrect. In fracture of both bones of the forearm the danger of lateral compression of the bones by the immediate application of a roller plaster cast is too great to advise this as the usual mode of treatment. In fractures of the upper third of the radius the advisability of dressing the arm in supination to prevent the loss of this motion is not mentioned.

The work is voluminously illustrated, and this fact adds materially to its value. The illustrations frequently show conditions much better than the text describes them. A chapter on "The Roentgen Ray and Its Relations to Fractures," by E. A. Codman, is excellent. It deals with the practical value of the rays in the diagnosis of fractures, the interpretation of skiagraphs and the errors of judgment into which one may be led by them. A chapter on the ambulatory treatment of fractures, which is somewhat historical in character, closes the work. While there are many good points in the work, it can not be said that the subject of fractures has been thoroughly covered, not even in treatment. The publisher's work has been unusually well done.

APPENDICITIS AND ITS SURGICAL TREATMENT: With a Report of One Hundred and Eighty-five Cases. By Herman Mynter, M. D. (Copenhagen), Professor of Clinical Surgery in University of Buffalo, Buffalo, N. Y. Third revised edition. Cloth. Pp. 231. Price, $2.00. Philadelphia: J. B. Lippincott Co. 1900.

This monograph was originally submitted to the University of Copenhagen in order to obtain the degree of Doctor of Medicine. It was accepted by the university in 1897, and was published in this country in 1898 as the first edition. The second edition was partly burned in the fire which destroyed the Lippincott Publishing Company in 1899. This, the third edition, has been revised and considerably enlarged by the addition of new material. The work is largely historical in character. The gradual development of modern ideas of appendicitis is traced from the earliest records. As the major portion of the work is made up of extracts from the opinions of others, it can not be criticised as coming from the author.

The author's statement, however, that he does "not consider cases of appendicitis with strictures, dilatations, coprolites, hydrops, ulcerations and the chronic and obliterating forms necessarily infectious" is not in accord with modern views of inflammation. An appendicitis not due to the action of microbes, which is the meaning of infectious here, can not be admitted.

The author's attempt to classify the cases pathologically into simple catarrhal appendicitis, ulcerative appendicitis and infectious appendicitis is open to the same objection.

Under his clinical classification he separates gangrenous appendicitis without perforation from gangrenous appendicitis with perforation. As every case of gangrenous appendicitis is certain to perforate if given time enough, there is not sufficient ground for subdivision of gangrenous cases on this basis.

Under treatment, the methods adopted by the leading men of Europe and America are considered. Much of this already has only an historical value, as opinions in regard to the treatment of appendicitis have changed so rapidly during the past few years. The author's views are decidedly in favor of early operation in acute cases and will, therefore, meet with the approval of all experienced surgeons.

Regarding chronic appendicitis, he states (page 117): "An operation is not indicated unless we feel the thickened and swollen appendix." That this is not a sound rule to follow the author himself makes very clear, for a few lines farther down he says: "I have, nevertheless, in several cases, where I was sure of feeling a hard, indurated appendix extending downward, found it in a diametrically opposite direction. What I felt was the flat tendon of the psoas minor muscle."

The work is an excellent review of the literature of the subject, and an extensive bibliography is appended. There are no illustrations.

ULCERS OF THE STOMACH AND DUODENUM AND ITS CONSEQUENCES. By Samuel Fenwick, M.D., F.R.C.P., Consulting Physician to the London Hospital, and W. Soltan Fenwick, M.D., M.R.C.P., Senior Physician to the London Temperance Hospital. Cloth; pp. 392. Price, $3.50. Philadelphia: P. Blakiston's Son & Co. 1900.

This volume is divided into four parts, the first dealing with the pathology and anatomy of gastric and duodenal ulcer, while the other three are devoted to the clinical aspects of the disease and its sequelæ. The data as regards the morbid anatomy were obtained from the results of over 1000 cases of gastric ulcer, and between 100 and 200 of ulcer of the duodenum taken exclusively from hospital records. The authors find the disease may occur either idiopathically or follow the course of some other malady. In the former case it is most common in young women, while in the latter it is not infrequently the cause of death in certain infective complaints in connection with heart and liver diseases. The book is very fully illustrated, especially in its earlier portion, and is an excellent monograph of its special subject. The illustrations are largely

from photographs and are better than is sometimes the case with such reproductions. While several of the leading subjects have their own brief bibliography, quite a lengthy general bibliography is given between pages 254 and 267. The absence of reference to certain comparatively recent American papers probably ought to be expected. The book is an addition to our literature on a subject which has not been too much treated of late years.

THE TALE OF A FIELD HOSPITAL. By Frederick Treves, Surgeon Extraordinary to H. M. the Queen. With 14 illustrations from Original Photographs. Leather. Pp. 109. Price $2.50. London, Paris, New York and Melbourne: Cassell & Co., Ltd. 1900.

Mr. Treves gives some excellent word-pictures of life in a field hospital on the desolate veldt of South Africa during the Boer war. The horror of war is seen by the army surgeon as by no one else, and this little book contains many vivid descriptions of ghastly experiences. Some of these are pathetic in the extreme, and others are amusing, though sad. The book is not written especially for medical readers, but these will be most interested in it. The author shows no mean ability as a descriptive writer, and his account of how a surgeon won the Victoria Cross is given in a way that few novelists could equal. The book is beautifully gotten up, with flexible morocco cover.

THE PRACTICE OF MEDICINE: A Text-Book for Practitioners and Students, With Special Reference to Diagnosis and Treatment. By James Tyson, M.D., Professor of Medicine in the University of Pennsylvania and Physician to the Hospital of the University. Second edition thoroughly revised and in parts rewritten. With 127 illustrations, including colored plates. Cloth. Pp. 1222. Price, $5.50. Philadelphia: P. Blakiston's Son & Co. 1900.

This edition has given the author opportunity to bring the work up to date. The principal changes have been made in the sections on the infectious and nervous diseases; considerable attention has likewise been given to those of the circulatory system. The proofreading, however, particularly in the foreign quotations, is not always above criticism; we notice, for instance, on page 70, "anopheles claviges." New illustrations have been introduced. We have no hesitation in recommending this admirable text-book to students and practitioners.

A HANDBOOK OF THE DISEASES OF THE EYE AND THEIR TREATMENT. By Henry R. Swanzy, A.M., M.B., F.R.C.S.I., Examiner in Ophthalmology to the University of Dublin. Seventh edition. With 165 Illustrations. Cloth. Pp. 607. Price, $2.50. Philadelphia: P. Blakiston's Son & Co. 1900.

This excellent text-book has been enlarged by the description of a method of employing the Roentgen rays for the detection and localization of foreign bodies within the eye. Minor alterations and improvements have been made, and several illustrations are added to the text. The different operations for cataract extraction are made plain to the beginner.

PHYSICAL DIAGNOSIS OF DISEASES OF THE CHEST. By Richard C. Cabot, M.D., Physician to Out-Patients, Massachusetts General Hospital. With 142 illustrations. Cloth. Pp. 310. Price, $2.50. New York: Wm. Wood & Co. 1900.

This volume will fill a very useful place in the student's library. It will be the more valuable for its well-selected and numerous illustrations, which serve admirably to assist the comprehension of the text.

Deaths and Obituaries.

Dr. Richard Beverly Cole, ex-president of the AMERICAN MEDICAL ASSOCIATION, whose death is announced as we go to press, was born Aug. 12, 1829, at Manchester, Va. He received his academic education at the Delaware Collegiate Institute, Newark, Del., and his medical studies were carried on at the medical department of Transylvania University and Jefferson Medical College, from which last institution he received his degree of M.D., in 1848. He subsequently continued his studies in Germany, France, and Great Britain. After a short residence in Philadelphia he removed to San Francisco in 1852, where he had since resided, and has been one of the most prominent members of the medical profession of the Pacific coast. He was surgeon-general of the celebrated vigilance committee of 1856, was surgeon-general of the state of California from 1868 till 1872 and again 1874 till 1876, and has held other official positions of note. He was one of the early movers in medical education on the coast, having held the chair of obstetrics and gynecology in the medical department of the University of the Pacific from 1858 till 1864, and since 1870 in the medical department of the University of California. Besides his presidency of the ASSOCIATION, 1895-6, he was its first vice-president in 1873, and the similar positions held by him in other societies and his honorary membership and fellowship are too many to enumerate. His specialty was surgery, and more particularly gynecology, and he held a high position among his fellow-workers in the field. We have no particulars of his latest illness, but there has passed away full of honors and years one of the most prominent figures in the medical profession of the western section of our country.

JOHN MASON GASTON, M.D., New York University, 1848, a charter member of the Marion County Medical Society and for nearly half a century an esteemed practitioner of Indianapolis, at his home in that city, January 11, after a short illness, aged 82.

EDWARD FARRELL, M.D., College of Physicians and Surgeons, New York, 1864, professor of surgery in the Halifax School of Medicine and president of the Nova Scotia Medical Society, at his home in Halifax, N.S., from pneumonia followed by typhoid fever, January 1, aged 57.

JOHN F. MAHONEY, M.D., Harvard University Medical School, 1887, of Chelsea, Mass., in California, aged 37. He was an esteemed member of the staff of the Rufus E. Frost General Hospital, which met January 1 and passed resolutions of respect, sorrow and sympathy.

ABRAM CLAUDE, M.D., University of Maryland, 1838, for eight terms mayor of Annapolis, professor of chemistry at St. John's College, and during the Civil War a surgeon in the U. S. army, at his home in Annapolis, January 10, aged 82.

HERMAN BAER, M.D., Medical College of the State of South Carolina, Charleston, 1861, prominent alike as a scholar, pharmacist, physician and citizen, at his home in Charleston, January 2, from apoplexy, aged 70.

DAVID D. BENEDICT, M.D., Western Reserve University, Cleveland, 1861, surgeon of the 17th Ohio Infantry in the Civil War, at his home, Norwalk, Ohio, from heart disease, January 5, aged 67.

RICHARD J. LINDERMAN, M.D., Pennsylvania Medical College, Philadelphia, 1858, at one time State Senator from Bucks county, at his home in Philadelphia, January 6, aged 65 years, after a prolonged illness from heart disease.

SMITH HOWELL MAPES, M.D., New York University, 1863, at his home in Indianapolis, January 10, after a long illness, aged 60.

ROBERT L. BROOKS, M.D., Tulane University, New Orleans, of Calhoun, suddenly, from heart disease at Monroe, La., January 9.

S. W. DEAN, M.D., University of Minnesota, an interne at the City Hospital, Minneapolis, from diphtheria, January 7, aged 25.

EDWIN BOGGS JOHNSTON, M.D., Western Pennsylvania Medical College, Pittsburg, 1895, at his home in Allegheny, January 1, aged 29.

SIDNEY ALLEN CONKWRIGHT, M.D., Jefferson Medical College, Philadelphia, 1892, at his home in West Sedalia, Mo., January 8, aged 31.

JOHN H. CLARK, M.D., Starling Medical College, Columbus, Ohio, 1853, suddenly, at his home in Mechanicsburg, Ohio, January 7.

EDWARD H. KRESS, M.D., Jefferson Medical College, Philadelphia, 1897, from typhoid fever, at his home in Johnstown, Pa., January 8, aged 27.

S. B. BEVILL, M.D., Vanderbilt University, Nashville, Tenn., 1892, from gunshot wound received in a dispute, at Alexandria, La., January 7, aged 32.

WILLIS M. PERKINS, M.D., Jefferson Medical College, Phila-

delphia, 1854, suddenly from heart disease, at his home in Aurelian Springs, N. C., January 2.

WILLIAM CAMPBELL DODGE, M.D., Jefferson Medical College, Philadelphia, 1864, of Adrian, Mich., from pneumonia in Chicago, January 12, aged 58.

RICHARD E. CHRISTIAN, M.D., Vanderbilt University, Nashville, Tenn., 1886, from pneumonia, at his home in Rowlandtown, near Paducah, Ky., January 1, aged 45.

THOMAS BOHANNON, M.D., University of Louisville, one of the oldest and best citizens of Jefferson county, Ky., at his home near Louisville, January 7, aged 85.

D. PROCTOR CAMPBELL, M.D., Cincinnati College of Medicine and Surgery, 1877, suddenly from heart failure, at his home, Green Springs, Ohio, January 7, aged 65.

WADE H. JONES, M.D., Medical College of the State of South Carolina, Charleston, 1858, at his residence in Tampa, Fla., after a long illness, January 5, aged 65.

ABIJAH W. BUTT, M.D., Jefferson Medical College, Philadelphia, 1886, at his home in Paoli, Pa., after an illness of two weeks, from rheumatism, December 31, aged 38.

J. N. HUFFAKER, M.D., Southern Medical College, Atlanta, 1882, of Plainville, Ga., at the Erlanger Hospital, Chattanooga, Tenn., December 30, after an operation for tumor.

H. A. DE CHESNE, M.D., College of Physicians and Surgeons of Lower Canada, 1848, at his home in Oakland, Cal., from complications following operation for hernia, December 21.

JAMES RICHARD MORISON, M.D., Northwestern University, 1899, of Traer, Iowa, from typhoid fever at St. Luke's Hospital, where he was a member of the house staff, January 6, aged 29.

JOHN NUTT, M.D., Rush Medical College, 1849, at San Diego, Cal., January 8, aged 78.

JOSEPH A. GARVIN, M.D., Bellevue Hospital Medical College, 1894, at New York, January 11.

JACOB S. HERRIES, M.D., University of Michigan, 1878, recently, at his home in Waterloo, Iowa.

WALTER L. KEIRN, M.D., University of Pennsylvania, 1852, at his home in Lexington, Miss., January 5.

EDWARD L. PARDEE, M.D., New York University, 1870, at his home in New York City, January 11, aged 58 years.

FRANCIS GRAFTON CONNOLLY, M.D., University of Maryland, 1871, at his home in Baltimore, January 10, aged 80.

ALEXANDER SHAW PORTER, M.D., a surgeon on the retired list of the Army, at Redlands, Cal., January 6, aged 33.

WILLIAM WOOD LESLEY, M.D., University of Pennsylvania, 1857, at his home in Philadelphia, January 5, aged 73.

New Instrument.

A New Laparotomy Pad.

J. HENRY BARBAT, M.D.

SAN FRANCISCO.

The ordinary Kelly pad, when used for abdominal operations, allows all the solutions used in the final preparation of the abdomen to flow under the patient's back, thus keeping it in a chemical bath during the entire operation. If the Trendelenburg position is used the pad will probably overflow and the solutions will gravitate toward the patient's neck. If irrigation is necessary, part of the irrigating material will flow on the side which has no apron, and wet the table and floor. These conditions may appear of trifling importance, but those in whose charge the patient is placed after the performance of the operation will hail with delight any device which will avoid these inconveniences.

I have devised a pad which consists essentially of two Kelly pads joined back to back. The pad when in position has an apron hanging down on each side of the table. The patient's spine is in contact with the center cushion, which holds the back up from the table, and keeps it from contact with any fluids which may be in the pad.

I have further arranged the operating-table so that the center is slightly higher than the sides, thus allowing all fluids to run outward instead of under the patient, leaving the pad dry at the completion of the operation.

Miscellany.

Viability of the Plague Bacillus.—In his "Preliminary Note on the Viability of the Plague Bacillus," published as a bulletin of the Hygienic Laboratory of the Marine-Hospital service P. A. Surgeon M. J. Rosenau gave the result of his observations on the viability of the plague bacillus on various fabrics and substances and under varying conditions of temperature and exposure to light, presence of moisture, etc. He arrived at the conclusion that the prolonged existence of the organism was dependent upon the presence of moisture, more than upon any other one factor. He showed, for instance, that at room temperature (20 to 27 C.) the organism lived in the presence of moisture for 60 days on crash, linen, woolen or silk fabrics; that it lived 96 days in distilled water; 97 days in ordinary tap water, and for the remarkable period of 125 days upon bone dust, where the presence of moisture was assured by wetting the substance with bouillon, and carefully stoppering the container to prevent evaporation. Since the time of publication of the preliminary note, the experiments have been continued in the laboratory for a period of over a year, and have only recently been concluded. Certain food stuffs were experimented on, but the fact developed that symbiosis with saprophytic organisms was prejudicial to the prolonged life of the bacillus, and that the substances must be subjected to a preliminary sterilization, in order to favor the growth of the plague bacillus. On cheese thus prepared, it lived for 13 to 17 days; on sterilized rice for only 3 days; on dried salt beef, 3 days; on orange peel there was no growth; there was no growth on dried figs and raisins, though this aws subsequently proved to be due to the amount of grape or fruit sugar contained. In many of the cases of prolonged survival, however, the virulence of the organism was lost at a comparatively early period, 62 days being the longest period after which the organism was fatal to mice. Rosenau also quotes Yokote, of Tokio, as to the effect of the presence of organisms of decomposition on the existence of plague, showing in the case of the bodies of mice dead of plague that the higher the temperature, the more the decomposition and the greater the number of saprophytes, and that with lower temperatures the reverse obtained.

Prizes Offered by the Paris Academie de Medecine.—Every year the Paris Académie de Médecine distributes about $11,000 in endowed prizes, all but five open to the competition of foreigners. The total offered this year is 851,400 francs, which includes the great Audiffred prize representing an annual income of $4800 for the discovery of a sovereign remedy against tuberculosis. Manuscripts or published works are eligible for a number of the prizes, marked with an asterisk (*) in the list we give below, in which the prizes reserved for Frenchmen are omitted. Those not marked with an asterisk require the identity of the applicant to be concealed—name in separate sealed envelope—until after the awards. All competing articles must be received by February of the year in question. The Académie prize of 1000 francs or $200, for 1902, is offered for the best work on "Toxins in Pathology"; for 1903, "Means of Determining the Eliminating Activity of the Kidney"; Alvarenga, 800fr., 1902 and 1905, best monograph or unpublished work on any branch of medicine; Amussat* 1000 fr.; 1902, for work or research which has realized or prepared the most important progress in surgical therapeutics; Baillarger*, b., 2000fr., "Treatment of Mental Diseases and Organization of Public and Private Asylums for the Insane"; Barbier*, 2000fr., 1902 and 1903, for complete cure for dis-

eases now considered incurable, such as cancer, epilepsy, scrofulas, typhus or cholera morbus, etc.; Boullard*, b. 1200fr., 1902, for best work or best curative results in mental diseases; Bourceret*, 1200fr., 1902 and 1903, best work or research on circulation of the blood; Dupierris*, b. 24000fr., 1902, for best work on "Anesthesia or Diseases of the Urinary Passages"; Capuron, 1000fr., 1902, "Relations Between Fibrous Tumors of the Uterus and Pregnancy"; Chevillon*, 1500fr., 1902 and 1903, "Treatment of Cancerous Affections"; Civrieux, 800fr., 1902 and 1903, "Various Forms of Dementia"; Clarens*, 400fr., 1902 and 1903, for best work on hygiene; Daudet, 1000fr., 1902 and 1903, for best work on so-called incurable diseases, especially tumors; Desportes*, 1300fr., 1902 and 1903, for best work on "Practical Medical Therapeutics"; Falret b. 700fr., 1902, "Somnambulisms"; E. Godard*, 1000fr., 1902 and 1903, for best work on "Internal Pathology"; Herpin, of Metz, qd., 1200fr., 1902, "Abortive Treatment of Tetanus"; Herpin, of Geneva*, 3000 fr., 1902 and 1903, for best work on epilepsy and nervous diseases; Laborie*, 5000fr., 1902 and 1903, for the work that has "Notably Advanced the Science of Surgery," awarded in 1900 to Quenu and Hartmann's book on the "Surgery of the Rectum"; Larrey*, 500fr., 1902 and 1903, best work on medical statistics; Lefèvre t., 1800fr., 1902, "Melancholia"; Lorquet*, 300fr., 1902 and 1903, "Mental Diseases"; Meynot*, 2600fr., 1902 and 1903, "Diseases of the Ear"; Nativelle*, 300fr., 1902 and 1903, for best work on the extraction of the definite principle of a medicinal substance never before isolated; Orfiia, b. 4000fr., 1902, "Alkaloids of Belladonna, Hyoscyamus and Datura, considered each from the point of view of Pathology, Therapeutics, Legal Medicine and Pathologic Anatomy"; Portal, 600fr., 1902 and 1903, "Experimental Study of Inoculation and Contagion of Cancer"; Pourat, 700fr., "Study of the Destination of Albuminoid Foods"; Ricord*, b. 600fr., 1903, for best work that has appeared in two years on venereal diseases; Saintlager*, 1500fr., to be awarded to the first person who produces a tumor of the thyroid in animals by administration of substances extracted from the water or soil of places where goiter is endemic; Saintour*, b. 440fr., 1902, for best work in any branch of medicine; Stanski*, b. 1400fr., 1902, for the person who best demonstrates the existence or non-existence of miasmatic contagion by infection or contagion at a distance. If no work fulfills these conditions the prize may be awarded for the best work on any question relating to contagion of inoculable diseases. Vernois* offers 700fr., "Hygiene"; Itard*, t. 2400fr. for best book on practical medicine or applied therapeutics, published at least two years; Lefort*; qq. 300 fr., 1903, for best original research on mineral and drinking waters; Tremblay*, qq., 7200 fr., 1903, for best work on "Diseases of the Urinary Passages, Especially Affections of the Prostate and Catarrh of the Bladder." All the above are annual prizes except those marked b., biennial; t., triennial; qd., quadriennial; qq., quinquennial.

Representation in the American Medical Association.—The ASSOCIATION is the second largest body of medical men in the world, numbering about 10,000 and rapidly increasing. It was organized 53 years ago, when the population of the United States was less than 20,000,000 and when there were probably not more than 40 medical societies of all kinds in the country. The founders recognized the necessity of limiting the number of those who should manage its affairs, and therefore limited the number of those who should have a right to vote. Even at that time the probability was realized that the number might soon be too large to give each one a right to a voice in the management of the affairs of the association, and so the delegate system was adopted. The plan upon which it was organized is the plan upon which the Association is working to-day, with a few minor modifications. It is a delegate body and all the business appertaining thereto is managed by delegates who are supposed to be elected by affiliated societies. These have a right to vote, and only these. The plan is an ideal one. It provides for a democratic form of representation looking to a limited number of representatives who shall act for the whole. It is the adoption of the general plan of the government of our country, by which delegates are elected to represent the many and to meet in congress to legislate for all. But every ten years a reapportionment is made by the government for the purpose of equalizing representation without increasing the size of the working body—the house of representatives. The AMERICAN MEDICAL ASSOCIATION, however, has made no reapportionment. The delegates are elected on the same basis now as in 1846; that is, one delegate for every ten members, every society being entitled to elect delegates in this proportion. As above stated, in 1847 there were less than 40 medical societies in the country; today there are nearly 1300. The number of delegates to the AMERICAN MEDICAL ASSOCIATION is not based on the number of members in that body, but on the number of members of the affiliated organization sending delegates. Thus one society may have 100 members, not ten of whom belong to the national body, and yet it is entitled to send ten delegates. One person may belong to several societies and be counted several times. Again, one State, Illinois, according to the list of affiliated societies printed in THE JOURNAL A. M. A. last spring, has 96 affiliated county societies, and as one of these has nearly 1000 members it may be presumed that the combined membership of these bodies in this one state, including the state society, represent at least 4000, entitling the state to send 400 delegates. It can readily be seen, therefore, that the number of delegates from the country at large necessarily makes a body too unwieldy for any deliberative legislative work. However, it is not necessary to present these figures in order to demonstrate that the number of delegates is too large, as this is quite evident at each annual meeting and is becoming more plain each year as the number in attendance increases. Under the present ratio of apportionment practically all who desire can receive a delegate certificate. It seems strange that in all these years, with the rapid increase in the number of physicians and in the number of societies in the country, not to mention the increase in population and in territory, no change has been made in this apportionment. If important questions are to be acted on deliberatively the body which acts on them must not be an unwieldy mass but must be composed of a limited number, elected in such a way as to fairly represent the profession in all parts of the country. It would seem desirable for the AMERICAN MEDICAL ASSOCIATION to consider whether the time has not come for a radical change in the basis of representation to its working body. The change must be radical now, for the reason that it has been delayed so long. If a change had been made each ten years, as is done in Congress, it would not have been considered radical at any time. Now it must be, if the result is to be a deliberative body that can act in a deliberate manner on the vital questions that must come before the Association.—*N. Y. State Jour. of Medicine*, January.

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Societies.

COMING MEETINGS.

Pan-American Medical Congress, Havana, Cuba, Feb. 4, 1901.
Tri-State Medical Association of the Carolinas and Virginia, Richmond, Va., Feb. 26, 1901.
The Associated Health Authorities and Sanitarians of Pennsylvania, Harrisburg, Feb. 6-7, 1901.

THE ETOWAH COUNTY (Ala.) MEDICAL SOCIETY met at Gadsden, January 2, for its annual session, and elected Dr. John P. Ralls, of that place, president.

THE JACKSONVILLE (Ill.) MEDICAL CLUB, on December 22, elected Dr. Henry C. Campbell, president; Dr. Albyn L. Adams, vice-president; Dr. David W. Reid, secretary.

THE NEW BRITAIN (Conn.) MEDICAL SOCIETY met January 2 and elected Dr. George J. Holmes, president; Dr. Harris L. Paige, vice-president, and Dr. Joseph B. Brocksieper, secretary and treasurer.

THE YAKIMA COUNTY (Wash.) MEDICAL SOCIETY was organized in North Yakima, December 28, with Dr. Thomas B. Gunn, president, and Dr. David Rosser, secretary pro tem., both of North Yakima.

THE ARIZONA ACADEMY OF MEDICINE met at Phoenix, December 31, and elected Dr. J. Capsely McIntyre, president; Dr.

Ancil Martin, vice-president, and Dr. Payne Palmer, secretary and treasurer, all of Phoenix.

THE MANHATTAN DERMATOLOGICAL SOCIETY, of New York City, has been organized with the following officers: Dr. William S. Gottheil, president; Dr. Ludwig Weiss, vice-president, and Dr. Jacob Sobel, secretary.

THE HANCOCK COUNTY (Ind.) MEDICAL SOCIETY met January 1, at Greenfield, and elected Dr. James W. Larimore, Greenfield, president; Dr. E. R. Sisson, Maxwell, vice-president, and Dr. Milo Gibbs, Greenfield, secretary and treasurer.

THE WAPELLO COUNTY (Iowa) MEDICAL SOCIETY met at Ottumwa, January 2, and elected the following officers: Dr. Lewis J. Baker, president; Dr. Frank W. Mills, vice-president, and Dr. Charles R. Russell, secretary and treasurer, all of Ottumwa.

THE ORANGE (N. J.) PRACTITIONERS' SOCIETY held it first annual meeting January 4, at which the following officers were elected: Dr. Edgar Calvin Seibert, president; Dr. J. Minor Maghee, vice-president, and Dr. Stephen G. Lee, secretary and treasurer.

THE ACADEMY OF MEDICINE, of Los Angeles, Cal., at its meeting December 28, elected the following officers: Dr. Benjamin F. Church, president; Dr. Charles W. Bryson, vice-president; Dr. William W. Apple, secretary, and Dr. Charles E. Bacon, treasurer.

THE FAYETTE COUNTY (Pa.) MEDICAL SOCIETY has elected Dr. Robert S. McKee, New Haven, president; Dr. Levi S. Gaddis, Uniontown, secretary and treasurer: Dr. John D. Sturgeon, Uniontown, assistant secretary, and Dr. Jacob S. Hackney, Uniontown, censor.

THE MADISON COUNTY (Ind.) MEDICAL SOCIETY met at Anderson and elected Dr. J. W. Coverston, Frankton, president; Dr. Edward W. Chittenden, Anderson, vice-president; Dr. Oscar E. McWilliams, Anderson, secretary, and Dr. William W. Kneale, Anderson, treasurer.

THE WEBER COUNTY (Utah) MEDICAL SOCIETY met December 27 and elected the following officers: Dr. Edward M. Conroy, president; Dr. Chester E. Coulter, vice-president; Dr. James M. Harris, treasurer; Dr. Hayward Powers, librarian; and Dr. Harry B. Forbes, secretary, all of Ogden.

THE BELMONT COUNTY (Ohio) MEDICAL SOCIETY, at its recent meeting at Bellaire, elected Dr. John A. Heinlein, Bridgeport, president; Dr. Samuel L. West, St. Clairsville, vice-president; Dr. Alfred C. Beetham, Bellaire, treasurer, and Dr. James S. McClellan, Bellaire, secretary.

THE ST. LOUIS MEDICAL SOCIETY held its annual meeting December 29 and elected Dr. Lewis E. Newman, president; Dr. William W. Graves, vice-president; Dr. Clifton R. Dudley, recording secretary; Dr. Alonzo R. Kieffer, treasurer, and Dr. William B. Shields, corresponding secretary.

THE HANCOCK COUNTY (Ohio) MEDICAL SOCIETY held its annual meeting at Findlay, January 3, at which Dr. John M. Firmin was elected president; Dr. Norman L. McLachlan, vice-president; Dr. Don C. Hughes, secretary-treasurer, and Dr. Theron S. Wilson, assistant secretary, all of Findlay.

THE NORTHWESTERN (Iowa) MEDICAL ASSOCIATION met at Sac City, December 27, and elected the following officers: Dr. Bernard C. Kelly, Carroll, president; Dr. M. L. Le Duc, Breda, vice-president; Dr. Daniel W. Wheelwright, Wall Lake, secretary, and Dr. Daniel J. Townsend, Lohrville, treasurer.

THE YORK COUNTY (Pa.) MEDICAL SOCIETY held its annual meeting January 3, and elected Dr. Roland Jessop, York, president; Drs. Nathan C. Wallace, Dover, and Jerry C. Murphey, York Haven, vice-presidents; Dr. Ralph A. Harding, York, secretary, and Dr. J. Ferdinand Klinedinst, York, treasurer.

THE JASPER COUNTY (Mo.) MEDICAL SOCIETY held its annual election of officers at Joplin, January 2, with the following result: Dr. D. V. Wale, Carthage, president; Dr. L. C. Chenoweth, Webb City, vice-president; Dr. Elizabeth L. Hull, Carthage, secretary, and Dr. Luther I. Matthews, Joplin, treasurer.

THE ALTOONA (Pa.) ACADEMY OF MEDICINE AND SURGERY, at its meeting January 2, elected Dr. J. Herbert Hogue, president; Drs. Frederick H. Bloomhardt and Henry H. Brotherlin, vice-presidents; Dr. J. Wesley Rowe, recording secretary; Dr. Mary Irvin Thompson, corresponding secretary, and Dr. Joseph U. Blose, treasurer.

THE LANCASTER CITY AND COUNTY (Pa.) MEDICAL SOCIETY, on January 3, elected the following officers: Dr. John J. Newpher, Mt. Joy, president; Drs. Milton U. Gerhard, Lancaster, and Edwin J. Miller, Intercourse, vice-presidents; Dr. Park P. Breneman, Lancaster, secretary; Dr. George R. Rohrer, Lancaster, treasurer, and Dr. Jacob R. Lehman, Mountville, corresponding secretary.

THE MEDICAL SCIENCE CLUB OF TOPEKA (Kas.) was organized January 5, its object being the advancement of medical knowledge among its members, the investigation and study of all subjects pertaining to the science of medicine, and the furtherance of fraternal unity in the profession. The following officers were elected: Dr. William E. McVey, president; Dr. O. Portis Davis, vice-president, and Dr. Corban E. Judd, secretary and treasurer.

THE TOLEDO MEDICAL ASSOCIATION met Jan. 11 and elected Dr. William H. Fisher for president; Dr. John North, vice-president; Dr. Charles P. Wagar, recording secretary; Dr. A. C. Schnetzler, corresponding secretary; Dr. F. E. Klauser, treasurer; Drs. J. C. Reinhart, A. C. Schnetzler, F. Jacobi, A. F. McVety and J. D. Ely, executive committee; Drs. H. A. Root, W. V. Anderson, K. M. Bainbridge, H. E. Smead and F. A. Leslie, examining committee; Dr. H. Hathaway, member of library board for 5 years; Drs. W. C. Chapman, H. Hathaway and W. D. Stewart, legislative and sanitary committee.

THE COLUMBIA (S. C.) MEDICAL SOCIETY met January 1, the vice-president, Dr. William Weston, in the chair. Dr. Benjamin W. Taylor, the senior member of the society, read a paper on "Appendicitis," after which Dr. James Woods, Babcock, superintendent of the State Hospital for the Insane, presented a handsome silver pitcher, suitably engraved, to Dr. Taylor on behalf of the society. In closing his remarks, Dr. Babcock said: "He has been our guide and friend in many of those trying ordeals which all physicians are called on to pass through. While we admit with Stevenson that gratitude is a lame sentiment and that thanks when expressed are often more embarrassing than welcome, yet, as members of the Columbia Medical Society, I ask you one and all to rise while I present this token of our fealty, love and admiration." Dr. Taylor made an appropriate and feeling response, and the society then adjourned and participated in the banquet prepared for the occasion.

New York Neurological Society.

Stated Meeting, Dec. 4, 1900.

President Dr. Frederick Peterson, in the chair.

TERMINAL CONDITION IN A CASE OF DIPLEGIA.

DR. WILLIAM M. LESZYNSKY presented a man, 21 years of age, in whom the chief feature of interest was a trembling of the hands, existing as long as he could remember. The trembling, which was growing worse, had always been more marked on the left side. No disturbance of sensibility could be detected. There was excellent muscular development on the left side and a spinal curvature, probably arising from the use of one side more than the other. There were no signs of atrophy. There was some asymmetry of the cranium. There was no disturbance of vision, but concentric contraction of the visual field. There was no nystagmus, and the pupils and fundi were normal. There was a positive tremor when at rest, increased on motion. The elbow-jerk was elicited only on the right side. Both knee-jerks were exaggerated. Ankle clonus had been demonstrated on both sides, though much more marked on the left. The man had probably recovered from a paralysis that he had had at one time, and was now suffering from a terminal condition of an infantile palsy. Undoubtedly there was a good deal of functional disturbance added to the organic trouble.

DR. M. ALLEN STARR thought the case was an athetosis on the left side, and that probably the same lesion, to a minor degree, was present on the opposite side. It was apparently a post-diplegic condition.

DR. E. D. FISHER also looked upon the case as one of cerebral diplegia most marked on the left side, and with the athetoid movements often seen in such cases. This extreme muscular development seemed to him not at all uncommon in this class of cases.

DR. B. SACHS said that there could be no doubt that the left side was the center of disturbance, and it was also probable that a part of the tremor was functional. The condition of the muscles in the scapular region seemed to him fully accounted for by the spinal curvature present.

DR. F. PETERSON agreed with the diagnosis of post-paralytic athetoid form of movement. Where the paralysis was small he thought these finer movements were more apt to be present.

TWO CASES OF SPINAL TUMOR, WITH OPERATION.

DR. M. ALLEN STARR said that five years ago he had been able to collect 145 cases of spinal tumor, in 22 of which operation had been undertaken. In the cases forming the subject of the paper pain had been very prominent, and this, together with the symptoms of pressure on the cord had allowed of the diagnosis being made. Two cases were reported in full, the first being operated on Oct. 22. On dividing the dura an extremely edematous state of the pia was observed, with one white plaque lying upon it. The cord was smaller and whiter than normal, and was not pulsating. No tumor was found. Three days later the wound was enlarged upward and the dura found to pulsate freely at the upper level, but not lower down. A tumor, 1¼ inches in length, lay upon the cord. It was oval, had a distinct capsule, and was removed en masse without difficulty. Subsequent examination showed it to be a fibroma. The cord had been reduced to about one-half of its diameter beneath the tumor. No attempt was made by Nature to heal the first operation-wound, and in spite of great care an extensive bed-sore developed over the hip. In the second week after operation the constricted feeling became less marked. The operation-wound healed very slowly. In the fourth week after the operation she had constant fever, probably because of the extensive bed-sores. The spinal incision healed about this time, but she died a few days later. The autopsy showed a softened condition of the cord opposite the exit of the second dorsal nerve from the dura, and the fifth and fourth dorsal nerves could be traced into this area. Owing to the rudimentary condition of the spine of the third cervical vertebra an error of one vertebra had been made in the count at the time of operation. The case seemed to emphasize the fact that there should be no delay in operating for spinal tumor after the diagnosis had been reached. In this case the delay had arisen from an effort to try the effect of antisyphilitic treatment, the husband being known to be syphilitic. Gumma of the spinal cord is quite rare, only 26 such cases having been found in a series of 400 cases. The tumor had been found about two inches higher than had been anticipated. Reed's table had been used as a guide at the first operation, but according to Bruns the operation should be done two segments above the upper limit of pain. This advice was nearer the truth in the present case. The level of the pain was about eight inches lower than the level of the tumor; hence in operating for spinal tumor the level of the cord should be exposed at least four inches higher than the level of the spinal nerve in which pain is found. The operation was done by Dr. McCosh.

The second case was also operated on by the same surgeon. He removed the spines and arches of the second, third and fourth lumbar vertebræ. Dissection showed a tumor involving both the soft and hard tissues of this region. The spines and arches had been eroded by the tumor, which subsequently proved to be an endothelioma. This tumor had invaded the spinal canal and produced pressure on the dura. The patient was in a critical condition for two days after operation, but since then had improved rapidly, and had had no pain since the operation. A considerable degree of atrophy had developed in both peronei. The wound had healed perfectly and there was no evidence of recurrence. It was reasonable to hope for recovery unless there should be speedy recurrence. Out of 145 cases of spinal tumor that he had collected, the history had been fairly clear in 122. Of 76 cases an operation should have been feasible, and according to the pathological report in 75 per cent. the tumors could have been removed.

DR. A. J. MCCOSH said that he had found spinal surgery much more satisfactory than brain surgery; certainly the localization of the lesions had been more satisfactory. It was difficult to say, however, that a lesion is situated at any one segment of the spinal cord, but as a portion of the cord equal to three or four vertebræ must be exposed a slight error in localization is not of great importance. He had had recently a case presenting symptoms almost exactly like those of the first case reported in the paper. The line of anesthesia had been almost the same, but there had been no paralysis of the arms. The autopsy showed a crushing injury of the cord between the fourth and sixth cervical vertebræ. The ordinary rules laid down had indicated a lesion much lower down, and he had in this way been misled at the operation. He had not found laminectomy a very serious operation as a rule, most of the patients having exhibited comparatively little shock; hence, one should not hesitate in advising the operation when the diagnosis was sufficiently clear. He agreed thoroughly with what Dr. Starr had said about the inadvisability of delaying the operation for weeks in order to give antisyphilitic treatment a trial. He had met with a number of cases in which he believed the fatal result was attributable to such delay. When bed-sores were already present the case was practically hopeless, the patient almost invariably dying from sepsis. It was well to remember that tumors of the cord are usually found higher up than the estimated level. By beginning above and working downward, it seemed to him that the healing process would be favored. He was not of the opinion that there was any good ground for believing that the operation of laminectomy so weakens the spine as to lead to disability. Mention was made of one of his cases in which a man was engaged at an occupation requiring the frequent lifting of heavy weights, yet he had felt no inconvenience as a result of the operation on his spinal column.

DR. PEARCE BAILEY reported the case of a man, 41 years of age, who had been treated for some time previously for a variety of troubles. When seen in May he had stated that about fifteen months previously he had begun to have intense pain on the inner side of the left thigh. There had been an interval of a few months in which this pain had almost subsided. There was slight atrophy in the left leg; the left knee-jerk was absent; there was very slight anesthesia. The case was diagnosticated as one of tumor of the cauda equina. Dr. McCosh had operated upon him on May 22. He had removed the last dorsal and the first and second lumbar vertebræ, and had exposed what had looked at first like a blood-clot, but microscopical examination had proved this to be a round-celled sarcoma. Although it was probable that all of this sarcoma had not been removed, the man had done extremely well all these months, was free from pain and had resumed his occupation.

ANALYSIS OF SYMPTOMS OBSERVED IN TUBERCULAR MENINGITIS AT THE BABIES' HOSPITAL.

DR. C. A. HERTER made an analysis of 24 cases of tubercular meningitis, and in 15 of these there were autopsies. In these 15 cases, 6 were at the age of eight months; 7 were one year old or under. In 9 cases of tubercular meningitis without autopsy, 6 were five months old. These figures showed that the disease was not so rare in the first year of life as had been supposed by some writers. Nineteen of the cases had run their course in less than one month. The fontanelle had been markedly distended in 7 of the 24 cases, and in 3 there had been a marked excess of fluid found at autopsy. In one case the fontanelle had been depressed—a case sick for four or five months. In six cases there had been a delay in the closure of the fontanelle. Vomiting had been noted in 19 of the 24 cases, and had been the first symptom in 14 cases. In five in which there was vomiting, the autopsy showed nothing different from the cases that had presented vomiting. In 11 cases there had been marked constipation. In cases coming to autopsy there had also been tuberculous lesions in the intestine. In several of the cases there were tubercular ulcers of the colon, and yet constipation instead of diarrhea had been present. The pupils were unequal in 12 of the 24 cases, and dilated in the others. The pupils were contracted in only two cases. Nystagmus was observed in four cases, and strabismus in ten cases. In the cases showing strabismus there were marked lesions at the base and in the interpeduncular space. There were general convulsions in 50 per cent. There was no case which did not present either rigidity or convulsions. In cases without meningitis but with tubercles in the brain, convulsions were not so common. Paralysis was noted in 10 of the 24

cases, and was monoplegic in a number. The variability of these palsies was a rather notable feature. In the cases without meningitis but with tubercles in the brain, no palsies or paralyses were noted. The tache cérébrale was noted in 7 cases, and flushing of the face in 10 cases. All the fatal cases had presented stupor or coma, or more or less irregularity of respiration, while these had not been observed in any of the cases with tubercles, but without meningitis. Hyperesthesia had been noted in only one case, and in only one had there been a well-developed cephalic cry. Retraction of the abdomen had been noted to a greater or less degree in 15 of the cases, but not at all in the other cases. The fever had not been high in the uncomplicated cases, and the pulse had shown nothing distinctive. In the cases without meningitis marked opisthotonos and convulsions had been the rule, and early vomiting had been much less frequent than where meningitis was present. Only two or three of the cases had presented solitary tubercles. In all of the autopsy cases the cerebral tuberculosis had been clearly secondary. The intestine was the seat of tuberculous lesions in 11 of the 12 cases in which the intestine was examined. The knee-jerks were increased in a large proportion of cases, and absent in only two. An interesting feature was that at times the knee-jerks would be alternately exaggerated and absent.

California Academy of Medicine.

Monthly Meeting, Dec. 18, 1900.

President Dr. D. O. Montgomery in the chair.

TUBERCULAR JOINTS.

DR. H. M. SHERMAN presented a case which had already been before the Academy. At that time he showed the result of an excision of the elbow, and called attention to the hip of the same side, which was swollen and tender in places; on one day the boy could walk well, and on another he would be lame. Some time before there had been a fluctuant swelling in the upper part of the thigh, and, for the sake of exploration this had been emptied by the aspirator, the contents being clinically tuberculous pus. This particular abscess had not refilled, and its emptying had caused entire disappearance of the symptoms which accompanied it. The symptoms noted at the time the case was in the Academy developed later, and were not the same as those of the abscess. The case very strongly suggested hip-joint tuberculosis, but an analysis of the symptoms prevented that diagnosis. After being shown at the Academy the boy got steadily worse, and the general swelling softened in one part above the trochanter, and fluctuation was palpable. The opening of this fluctuant place let out tubercular pus, and the cavity led down to the rim of the acetabulum, at its upper part, where was found a sequestrum, wedge-shaped, and quite free. It was removed; its bed was scraped out, and the cavity joint, which was already open into the abscess, was thoroughly washed out. The femoral head appeared normal. The wound was closed with temporary drainage and healed very kindly. Very shortly it broke down again and formed a sinus leading into the joint and always discharging. A formal excision of the hip was done and considerable of the ilium, the seat of a tuberculosis that had spread from the site of the sequestrum, was removed. The wound was packed with serile gauze, and made to heal from the bottom. By this time the elbow had again broken down, and it was again laid open and thoroughly scraped out and washed. It too was packed and healed. Since these operations the general health of the patient has been perfect and there had been much increase in weight. The elbow is especially satisfactory; flexion is efficient and of normal range; extension is not so strong; the hand can be put on the head, and is commonly used for all ordinary purposes. The use of the hip has not yet begun.

In this case it seems likely that the elbow was the primary lesion, and the hip secondary to it, for no other lesion, skeletal, glandular or visceral, can now be found; and his health and general development do not suggest the idea of a latent lesion, though they may not be absolutely incompatible with the existence of one. Section of the femoral head after removal showed that the tuberculosis was invading its upper half, that which had been in contact with the sequestrum in the lip of the acetabulum.

HYDROCELE.

DR. DUDLEY TAIT exhibited a patient 79 years of age, on whom he had operated three months ago, and read a paper on the treatment of hydroceles. He said that the essentials of a radical cure are that it shall be devoid of danger and pain, prevent recurrences, and finally that it shall permit the patient to resume his ordinary business in the shortest possible time. He condemned the treatment by the injection of irritating fluid for the purpose of producing adhesive inflammation between the layers of the serosa, also Volkmann's operation of incision, followed by suture of the edges of the serosa to the skin, with or without drainage, as being very uncertain in their results. In twelve of his cases operated by the latter method, he noted relapse in two, and called attention to the fact that German authors acknowledged 12 to 15 per cent. of recurrences after Volkmann's operation. Partial excision of the parietal tunica vaginalis, by which an incision is made down to the fibroserous layer; the tumor, still unopened, is then dissected by means of gauze, or the finger, until the mass is free from the cellular layer, especially posteriorly. A long incision is then made in the sac, from which the liquid escapes. The tunica is then turned inside out, placing the endothelial surface outward and securing the cut edges of the serosa as high as possible around the cord by means of two or three catgut sutures. The testicle is then replaced in its normal position. It is covered by the skin, dartos and cellular tissue. Suture of the skin without drainage completes the operation, which requires generally from five to ten minutes.

He did not claim, however, the slightest priority for this measure, in as much as Longuet published a description recently, and stated having treated 22 cases by this plan, the majority as early as 1898. Among the objections made to the method of inverting the tunica vaginalis, were the risk of injuring the cord, fixation of, and subsequent atrophy of, the testicle, and the possibility of relapse. All these points have been refuted by the experience of Longuet, who had not found a single instance of recurrence in his list of 22 cases. Dr. Tait's personal observations comprised two cases, one of which was the patient exhibited at this meeting, in which an examination of the patient at this time (three months after operation), showed the scrotal tissues freely movable over the surface of the testes. The inverted tunica undergoes atrophy.

DR. CHARLES P. THOMAS, Spokane, said that he could not quite see the advantage of the operation described by Dr. Tait over the one he usually performed, which is that of excising the tunica vaginalis. He believed that every clean surgeon is convinced that the open method is the right one. The diagnosis is not always easy, but is always cleared up by the incision method, which he thought was the proper one. In any form of closed treatment there is a danger of sepsis until the wound is healed.

DR. W. I. TERRY said that the method seemed to him irrational. He did not see the object of doubling up a mass of tunica, and fastening it up to the cord.

NEPHRECTOMY.

DR. DUDLEY TAIT also reported a case of nephrectomy in a patient aged 62. The trouble began 18 months ago with polyuria and pollakiuria. Diabetes was then diagnosed and a rigid diet enforced, causing a loss of 62 pounds. Four months later there was painful micturition and slight pyuria. Occasionally there was some tire on the right side. He was treated for cystitis by various physicians for 14 months with no benefit. Examination in the beginning of November, 1900, showed an adherent painful mass in the region of the right kidney, pus in large quantities in the urine, albumin, a few red corpuscles, numerous pelvic and a few vesical cells. The segregator (Harris) gave a decidedly purulent urine from the right side, and almost clear urine from the left. The amount from the left side was almost double that from the right side. Temperature at this time was almost invariably 37.2 C. in the morning, 39 at night; pulse, from 70 to 80. Diagnosis, pyelo-

nephritis, possibly tuberculous, with a mild cystitis. Lumbar incision November 14 showed an extremely adherent kidney. With considerable difficulty and some hemorrhage the lower three-fourths of the kidney were freed. During this dissection two pockets of pus were opened in the lower third of the kidney. Further dissection being apparently impossible, clamps were applied and morcellation done. The wound was left open. The patient's condition immediately after the operation was very satisfactory: pulse, 98; temperature, 38. The dressing was removed on the third day; the wound had then the aspect seen when clamps are used. Healthy granulations were not noted on the surface of the entire cavity until the fifteenth day. The patient had no control of micturition; it was, however, no longer painful. The daily amount of urine passed could not, therefore, be estimated accurately. It varied between 900 and 1300 gm. It contained a small amount of pus in the beginning and became almost clear during the second week. On the seventeenth day the urine contained a few leucocytes, albumin and a few vesical, but no pelvic cells. The pulse showed a marked increase as early as the fourth day, 104, and rose gradually subsequently. The treatment was salt water subcutaneously, cardiac stimulants, diuretin and milk. On the twentieth day the condition of the wound was entirely satisfactory. The granulations were present in all directions. The pulse remained high, 118 to 120; temperature at night, 38.4. Urine was clearer and more abundant. Without apparent cause a sudden change occurred during the day, pulse 134, irregular; temperature, 38. Urine greatly diminished in quantity. Notwithstanding the use of stimulants and salt solution, the pulse increased in frequency, 180, and more intermittent. The patient died twelve hours later, the twentieth day after operation.

There were at least three points worthy of discussion in this case. 1. The mistake in diagnosis made by those who saw and treated the patient during the 18 months preceding the operation. Failure to make the usual examination of the urine and urinary system is the only possible explanation. 2. Whether in the presence of multiple purulent foci in the kidney it is safer to be contented with a nephrotomy and drainage. The French school almost unanimously advises incision and drainage in the common nodular infiltration of the kidney. In the case under discussion the kidney was very friable, extremely adherent in the upper third, and two pockets of pus had already ruptured during the dissection. Nephrotomy under these circumstances would have been very easily done, but the symptoms would probably not have cleared up with such incomplete drainage. However, the question still remains: would nephrotomy, with or without secondary nephrectomy, have given a better result? 3. The condition and function of the remaining kidney. The Doctor confessed to have neglected the proper study of the case from this all-important point of view. He failed to utilize any of the recent methods of determining the function of the kidneys. The methylene-blue test, the phloridzin test for artificial glycosuria, and cryoscopy were not resorted to.

Johns Hopkins Hospital Medical Society.

Meeting held Dec. 3, 1900.

Dr. H. Barton Jacobs, in the chair.

CIRRHOSIS VENTRICULI.

DR. THOMAS MCCRAE exhibited, in the absence of Dr. Osler, the specimen of this exceedingly rare affection, from a man aged 48. The previous history was unimportant, except that the patient was in the habit of drinking large quantities of cold beer. The symptoms began five years ago, with acute epigastric pain, followed by loss of weight. There was no nausea or vomiting, nor other symptoms pointing to ulcer. A slight epigastric ridge was felt, which, with the absence of free hydrochloric acid and presence of lactic acid, led to the diagnosis by Dr. W. S. Thayer of carcinoma. Later the patient was seen by prominent specialists in New York, who did not confirm this diagnosis. The case came recently under Dr. Osler's care, with the additional history of a gradually diminishing ability to ingest food and loss of 100 pounds weight during the past year. A test-meal gave 90 c.c. of fluid, with total absence of hydrochloric acid. There was no anemia. Dr. Osler made a diagnosis of cirrhosis of the stomach. Dr. Finney operated and found an hour-glass constriction at about the middle of the stomach. The opening was made on the pyloric side of the stricture, which admitted only one finger, and the stricture was then divided and the opening in the stomach closed in the usual way. The patient gradually sank and died four days later. On autopsy there was no evidence of peritonitis and the stitches held well. Death appeared due to exhaustion. Sections showed great overgrowth of fibrous tissue, and there was no sign of previous ulcer.

DERMOID CYST OF MESENTERY.

DR. J. F. MITCHELL stated that a man aged 34, a healthy, robust teacher, came into the hospital complaining of pain in back and abdomen. His trouble began ten years ago, with colicky pain recurring two or three times a year, with constipation, but no fever. Five years ago, the attacks had become more frequent, recurring five or six times a year. By last summer they recurred every six weeks. Constipation was the rule, and with relief of that came relief of the pain. Three years ago, a lump, 4x3 inches, appeared below the umbilicus in the median line. On entrance to hospital a lump was found just below the umbilicus, which disappeared altogether at times. In the knee-chest posture, it fell forward and was readily moved from side to side. On deep pressure there was pain. The urine was negative and there had been no hematuria. It was scanty and high-colored during the attacks, but there was no increase afterward. The tumor was thought to be a displaced kidney. An exploratory incision was made by Dr. Finney, and it was found to be a dermoid cyst between the folds of the mesentery, about 10 cm. in diameter, quite firm, with indefinite sense of fluctuation. On slitting up the mesentery, the tumor was easily peeled out. The abdominal cavity contained a large amount of fluid, which contained leucocytes but no other cells. Examination of the cyst contents shows fat globules and fatty acid crystals, but no cholesterin.

DR. T. B. FUTCHER said the diagnosis had been in doubt; Dr. Osler had been non-committal, spoke of mesenteric tumor and also intestinal tumor, but inclined more to a tumor of kidney. He himself had also inclined to the latter opinion. Dr. Young had made a cystoscopic examination and drawn the urine from either kidney; this was normal, which should have impressed them more than it had. The contents of the cyst resembled the stools in "fatty diarrhea."

ACUTE PANCREATITIS.

DR. JOS. C. BLOODGOOD reported two cases. The affection is rare and the diagnosis not often made. Early diagnosis with operation may be followed by recovery. In 12,000 surgical admissions here, and perhaps an equal number on the medical side, there have been three cases, one of these being hemorrhagic and two of the suppurative form. There were only two cases of cysts of the pancreas and ten or twelve of carcinoma of the pancreas. The first case was one of acute hemorrhagic pancreatitis. There was no history of the case, but the patient came in with a diagnosis of acute intestinal obstruction, nausea and vomiting. Operation was done and areas of fat necrosis and small hemorrhages were found. The wound was closed and death was expected, but the patient recovered.

The second case was in a man 47 years of age, with a considerable excess of fatty tissue. The only evidence of previous illness was symptoms of indigestion for some years. Seven months before present attack he had had an attack of jaundice, lasting three weeks. Present attack began twenty-one days before operation; he was suddenly seized with nausea and vomiting and intense cramp-like pain. Five days later he still had great pain, with distension, nausea, vomiting; the temperature was 105 degrees, the first time it had been noted to be febrile. There was vomiting of pus at intervals. The seventh day his physician noticed a tender mass in the right lumbar region. Patient also noted swelling on right side. There was no marked rigidity. He had chills and fever. Tenderness developed in the mass, but there was no jaundice. On admission

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patient was a large man, with pulse 110-120, and a tumor more visible to the right side of abdomen, but more palpable to the left of the umbilicus and below it. The right lumbar curve was fuller than the left. There was distinct resistance in the site of the tumor. The surface of the tumor was irregular, but smooth. Its lower margin moved on inspiration; over it was doubtful tympany. The dulness of the tumor was continuous with that of the liver. There was continuous fever. Leucocytes numbered 20,000. He became slightly delirious and stupid. These symptoms continued, with dry and coated tongue, pulse of 130 and dorsal decubitus. The mass was distinctly outlined, occupying chiefly the umbilical and epigastric region and more toward the right side—a large immovable mass feeling like the omentum around an appendicitis. The dulness was less between the tumor and liver. He never had appendicitis in the middle line, although he had it to the right of the gall-bladder. So bad was the patient's condition that operation was done under cocain. On entering peritoneum the omentum was seen to be studded with areas of fat necrosis, making the diagnosis positive. There was an evident tendency to bleed. Pus was encountered, first yellow and gelatinous, later brown, with a distinct, sweety odor. The pus came out slowly, at least 250 c.c. draining out. Death followed within twelve hours with symptoms of infection. Gall-stones were found. The third case presented practically the same history. There was a distended stomach and a definite area of tympany between the tumor and liver. There was a history of morning nausea and vomiting of two year's duration. Patient was a stout man, an excessive user of beer and alcohol. There was an excess of subcutaneous fat. Patient had been sick four or five days before admission. There was a well-defined tumor, not moving on respiration. At the operation done by Dr. Finney the tumor was situated beneath the omentum. There was no improvement in the patient's condition. The wound was reopened and a large pancreatic abscess found; as soon as this was opened and drained nausea and fever ceased. The patient is living and well to-day, and is seen now and then. Six months ago he had only a suggestion of gall-stones. This patient has no recollection of coming to the hospital. Such patients look iller than those with appendicitis or cholecystitis. He has noticed in connection with gall-stones an induration of the head of the pancreas. It is well known, especially from the researches of Opie, that we get interstitial pancreatitis from obstruction of the pancreatic duct in this way.

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Philadelphia County Medical Society.

Meeting, Dec. 12, 1900.

President Dr. J. H. Musser, in the chair.

RESECTION OF ULNAR NERVE.

DR. ERNEST LAPLACE presented a case of nerve severed for nearly one year and in which there had been paralysis and contracture of the fingers. The injury had resulted from a fall on a sharp object. He had made a dissection and found the two ends of the nerve separated a distance of about 1½ inches. The lower end was enveloped in cicatricial tissue. Both ends had been freed from the surrounding tissues and gradual traction made until the two ends were brought together, after which the nerve was united end to end by ten very small silk sutures inserted by means of the smallest needle possible. Before the operation there had been complete paralysis, but on the following day the patient could move the fingers, and on the fourth day he could move the hand; sensation is almost normal, thus showing that many of the severed fibers have found there fellows. From this fact the result might demonstrate the value of en-to-end union in severed nerves rather than splicing or overlapping.

DR. T. S. K. MORTON spoke of a similar case he had operated upon several years ago in which sensation had returned in the parts within two or three hours after the operation for union of a severed nerve.

LYMPHATIC AND PORTAL INFECTION FOLLOWING APPENDICITIS.

DR. JOHN C. MUNRO, of Boston, began by stating that infection of the retroperitoneal lymphatics is more common than is generally supposed. A continued temperature after operation for appendicitis should indicate infection of the retroperitoneal lymphatics. When there is a chill, high fever and jaundice, infection of the portal system should be suspected. When the former is found in any given case it should be looked on as of appendicular origin. The speaker then detailed a series of cases to illustrate the symptoms set up by infection of this character. The onset is not always sudden, but may occur several weeks after the operation and leading to the formation of abscess. In one case there had been a slight elevation of temperature for three months following an operation for appendicitis and later a retroperitoneal abscess was found. In another case subsequent to operation the patient developed chills and fever accompanied by jaundice, but aspiration—which is not a good procedure—failed to find pus in the hepatic region. In one case an abscess of liver was found which had resulted from appendicitis.

From the history of many cases he had made the following deductions: 1. In appendicitis there is nearly always infection of the retroperitoneal lymphatics. 2. This infection may date its origin previous to the onset of appendicitis. 3. Infection of the lymphatics is more common than pyelophlebitis. 4. The infection shows a tendency to spread by way of the lymphatics. 5. These complications demonstrate the value of free openings and drainage following operations for appendicitis.

DR. H. A. HARE spoke of the venous and lymphatic vessels and their relationship in the region of the appendix. A study of these shows the readiness by which infection may reach the liver and contiguous regions. The relation existing between the blood-supply of the appendix and liver is a close one. The essayist had touched on the fact that symptoms often indicated the affection of distant organs such as the spleen, stomach or other viscera when the main fault might be located in the appendix. This fact might be due to the widespread infection resulting from this condition.

DR. JOHN B. ROBERTS believed that physicians as well as surgeons were too prone to look on appendicitis as only a local condition, but the symptoms presented should call for a more careful study of the question. He disapproved of introducing aspirating needles as a diagnostic sign of hepatic abscess.

DR. EDWARD MARTIN was afraid that perhaps too many cases of doubtful nature would now be attributed to this condition. In his opinion infection of the retroperitoneal lymphatics was somewhat rare. A free incision with drainage in appendicitis would usually prevent involvement of the lymphatics. As to the use of a trocar in making explorations for abscess, it might in some cases be better than an incision which might lead to fatal hemorrhage, as instanced by a case which he had seen.

DR. JOHN G. CLARK stated that within the past three or four months he had been making a series of experiments to determine the very point made plain by Dr. Munro. He had found that after carmin granules had been injected into the more dependent parts of the peritoneal cavity of rabbits and the animal subsequently kept in an upright position after the lapse of five hours carmin granules could be found in some of the lymphatics in the sternal region. This showed that they could easily make their way through the diaphragm. After the lapse of a longer period of time carmin granules could be found near the liver, kidneys or gastric regions. He had been able also to find these granules in the bone marrow. These results only seem to follow the injection of the granules into the more dependent portions of the peritoneal cavity or adjacent to the pelvis which might therefore go to confirm the clinical observations of Dr. Munro in regard to infection of the retroperitoneal lymphatics and venous circulation in cases of appendicitis.

DR. SIMON FLEXNER thought the condition might be allied to that seen in typhoid fever and other infectious diseases when thrombosis occurs. It requires only a very short time for bacteria to be distributed throughout the body. This had been demonstrated by an observer who, after injecting the bacillus prodigiosus, had, after five minutes, found it in the bile.

Chicago Pathological Society.

Meeting held Dec. 10, 1900.

URETERO-INTESTINAL ANASTOMOSIS.

DR. F. R. ZEIT discussed an experimental study of the pathology and bacteriology of ureteral implantation into the rectum as practiced on 120 dogs, and implantation of the trigonum into the rectum on 21 dogs.

The operations on the animals were done by Drs. Franklin H. Martin and Reuben Peterson with a view of devising an operation for cases of malignant disease of the bladder. The paper gave: 1. A complete résumé of the literature of bilateral uretero-intestinal anastomosis on man and animals, showing that no better results can be expected in man than those obtained in animal experiments. 2. The results of careful pathological and bacteriological examination of the operated animals. 3. The results of animal experiments with a view of producing immunity to the bacillus coli communis.

The conclusions reached are, that no matter what the operation employed with a view of preventing ascending renal infection, the pathology of ureteral implantation into the rectum is the pathology of pyelonephritis and its sequelæ. All the variations of this form of suppurative nephritis were observed in the operated dogs, from the earliest beginning of ascending infection a few days after the operation up to the healed process with induration and cicatrization and resulting granular contracted kidneys, which were found in all dogs that have recovered from the primary results of their pyelonephritis. Numerous microscopic specimens and photomicrographs were shown to prove that infection could have taken place only by way of the ureters, pelvis of kidney and uriniferous tubules, and that the pyelonephritis was caused by the bacillus coli communis.

Most of the dogs died of peritonitis due to leakage of urine and general sepsis and pyelonephritis during the first ten days, the primary mortality being 84 per cent. Dogs living a longer time died of pyelonephritis, pyelonephrosis and pyemia, or recovered from the pyelonephritis with contracted kidney. Specimens were shown of other dogs which appeared to be in perfect health 210, 300 and 405 days after operation. All had granular contracted kidneys, and still showed evidences of former pyelonephritis. The ureters are not much diseased, although usually dilated, no matter how severe a pyelitis or pyelonephritis was present. The bladder is always found to be infected by way of the urethra. In all cases where the bladder had not been removed, it was found to contain a purulent fluid teeming with bacteria, mostly staphylococcus albus and bacillus coli communis. A purulent cystitis was found also when the operator squeezed out the bladder thoroughly before closing up the abdominal wound after the operation.

Operative results on 21 dogs with implantation of trigonum into rectum were more favorable. Specimens from several dogs were shown, one of which was killed on the thirteenth day after operation. One ureter with trigonum implanted showed a normal kidney. The other ureter implanted without vesical mucosa resulted in a violent pyelonephritis.

Buffalo Academy of Medicine—Medical Section.

Meeting held Dec. 11, 1900.

PERIODIC VOMITING.

DR. CHARLES G. STOCKTON reported a case of what was held to be characteristic cyclic or periodic vomiting in a child. It first appeared when the child was 3 years old, and occurred at intervals of six or twelve weeks, thereafter, for a period of five years, when the attacks declined in frequency and severity, and have now quite disappeared. The seizures were ushered in by a day or two of dulness with inactivity of the bowels; the appetite was usually good. The vomiting occurred suddenly and was repeated sometimes with severe retching at intervals of one-half or one hour. The ejecta appeared to be pure gastric juice, rich in hydrochloric acid, which acidity declined as the attacks passed off. After vomiting for about a week, during which there was very alarming prostration, constipation of the bowels and diminution of the urinary output, improvement appeared as suddenly as the onset. In forty-eight hours the child seemed as well as ever, and continued to be perfectly well in the interval. The affection was apparently in no way related to any other ascertainable condition, and was not precipitated by overeating or other faults in hygiene. The writer assigned this case to a group which he thinks differs from the cases reported by Leyden, which occurred in adults, and those reported by Boas, in which there was hypochlorhydria, and from other groups not answering to the description of pure cyclic vomiting in children. Hypodermoclysis and enteroclysis were recommended as means of averting the dangers of collapse. Several fatal cases were referred to.

TREATMENT OF DISEASES LOCALLY BY HOT-AIR.

DR. PRESCOTT LE BRETON referred to the introduction of superheated dry air in England in 1893 as a remedy to alleviate pain and cure disease. A description of the apparatus which essentially consists of 1, an oven to enclose the affected parts; 2, a suitable covering for the skin to absorb perspiration and prevent blistering, and 3, some means of generating heat.

The treatments to any given part occupy from one-half to one hour, and the temperature reached in the bath varies from 250 to 340 F., the heat varying according to the sensation of the patient. Massage is indicated afterward, especially if there is any swelling or exudation. The effects of this extreme heat locally are a relaxation of the tissues, an increase in the circulation with dilation of the blood-vessels, a numbing of the sensory nerves, a marked perspiration and often a change from an unhealthy to a healthy metabolism. Swelling is diminished, pain is relieved, stiffened joints and muscles move more freely. The writer details the effect of this treatment in 12 selected cases, including Colles fracture, sciatica, muscular rheumatism, contusion to lumbar region, coccygodynia, rheumatoid arthritis, neurasthenia spinalis, old dislocation of hip, subacute rheumatism, and neuritis, in all of which much good was noted with oftentimes a cessation of all symptoms. A like result was also noted in 35 cases selected from other observers.

Therapeutics.

Vapor-Bath.

The following simple method for giving a vapor-bath to patients who have to be treated in the recumbent position is recommended by *La Presse Médicale*: Spread a blanket over the bed, upon which place the patient, dressed only in his gown; under each foot and at each side of the body place a well-corked stoneware jar of boiling water. Before being placed in position, each jar should be covered with a damp towel and afterward covered with a piece of flannel. After the jars are placed in position the blanket is folded over the patient and he is then covered with another blanket and an eiderdown quilt. In a few minutes a profuse perspiration is brought on, lasting for a time, varying according to circumstances. If it is advisable to increase the perspiration, warm drinks may be given. When the patient is taken out of his vapor-bath, the blankets on which he lies and the jars are withdrawn without uncovering him, and his body should be dried under the second blanket and the quilt, which are allowed to remain. After twenty or thirty minutes his linen may be changed.

Nephritis Following Scarlet Fever.

J. Lewis Smith recommends the following mixture in order to increase the elimination by the bowels, skin and kidneys:

R.	Potassii acetatis	
	Potassii bicarb.	
	Potassii citratis, āā	℥ii 8|
	Infusi tritici repentis, q. s. ad	℥viii 256|

M. Sig. A teaspoonful every three or four hours in water, for a child of 5 years.

Treatment of Impetigo Contagiosa.

Engman, in *St. Louis Med. Review*, outlines the following treatment in impetigo: The bullæ should be opened and the contents caught in absorbent cotton and not permitted to run over the skin. Free the surface of the diseased epidermis by clipping it off close to the bullæ, and dust with an antiseptic powder. When the disease is widespread and there is much crust-formation, a bland oil, such as carron-oil, liquid albolene, or olive-oil, to which has been added 2 per cent. of salicylic acid, should be used. This should be well rubbed over the surface, the crust detached, and the following dusting-powder applied:

R.	Acidi salicylici	gr. xx	1 33
	Acidi borici		
	Zinci oxidi		
	Amyli, āā	3ii	8

M. Sig. Apply locally.

Baths are contraindicated. Ointments seem to irritate, consequently the application of the bland oil to soften the crusts followed by the antiseptic dusting-powder is regarded by him as the most successful method of treatment.—*Med. Standard.*

H. H. Whitehouse, in "Twentieth Century Practice," recommends the removal of the crusts by washing with white castile soap in warm water, followed by the application of a mercurial preparation:

R.	Hydrargyr. ammoniati	gr. x	66
	Adipis benzoinati	3i	32

M. Sig. Apply locally twice daily; or

R.	Ichthyoli	gr. xv	1
	Ung. zinci oxidi q. s. ad	3i	32

M. Sig. Rub in well two or three times daily.

The latter acts very well, especially when the crusts are adherent, in which case it should be spread thickly on lint and bound on. He states that in all cases, but particularly in the bullous form, ichthyol in 3 per cent. strength is very effective.

Removal of Warts and Moles.

W. C. Abbott applies the ethylate of sodium for this purpose in the following manner: The growth should be walled in with a piece of wax, vaselin or mutton tallow and then a drop of the above solution should be placed on the tip of the growth. After two or three minutes any remaining portion should be absorbed with a blotter. A caustic effect occurs which kills quite deeply; a scab is formed, which peels off, leaving the part normal.

[Sodium ethylate is formed by the combination of metallic sodium and pure alcohol. It forms a white powder, which is soluble in water or alcohol. It is generally used in an aqueous solution of 10 per cent. strength.]

Sweating of Feet—Hyperidrosis Pedis.

The *Pharmaceutical Post* publishes the following formulæ for treatment of excessive sweating of the feet:

R.	Balsami peruviani	m. xv	1
	Acidi formici	3i	4
	Chloralis hydratis	3i	4
	Alcoholis—absolute—q. s. ad	3iii	96

M. Sig. Apply by means of a local pad of wool; or

R.	Acidi borici	gr. xv	1
	Sodii boratis		
	Acidi salicylici, āā	3vi	24
	Glycerini	3iss	48
	Alcoholis, q. s. ad	3iii	96

M. Ft. lotio. For local application.

Sajous' Annual contains reports of good results obtained by Legoux in treatment of cases of obstinate perspiration of the feet with offensive odor, of several years' duration. He first bathed the feet for several days in a weak infusion of walnut leaves and applied the following mixture twice daily:

R.	Liq. ferri chloridi	3i	64
	Glycerini	3v	20
	Essentiæ bergamottæ	m. xl	2 66

M. Sig. Apply to the feet twice daily.

For Disinfecting the Mouth in Infectious Diseases.

R.	Acidi carbol	3i	4
	Glycerini	3vi	24
	Aquæ destil., q. s. ad	3ii	64

M. Sig. Apply to the buccal mucous membrane with a pledget of cotton on an applicator; or

R.	Acidi carbol.	3i	4
	Spiritus camphoræ	3ii	8
	Olei olivæ, q. s. ad	3ii	64

M. Sig. To be applied locally by means of an applicator; or

R.	Acidi carbol	3i	4
	Alcoholis—pure	3ii	8
	Glycerini	3vi	24
	Aquæ destil., q. s. ad	3ii	64

M. Sig. For local application by means of a swab.

Care should be used that none of the solution drops into the larynx. This can be avoided by pressing the swab against the side of the bottle before applying it.

Thiocol in Tuberculous Cases.

Braun, in *Klin. Ther. Woch.*, has found that thiocol is better tolerated by the stomach than the other drugs of the creosote class. It has given considerable relief in tuberculous cases; to those suffering from chronic bronchitis especially.

—*Internat. Med. Mag.*

[Thiocol is the potassium salt of guaiacol-sulfonic acid. It contains about 60 per cent. of guaiacol. It is a fine white powder, which has a taste at first bitter then sweetish. It surpasses the other preparations in that it is free from odor, is very soluble in water, rapidly absorbed by the mucous membranes and is free from irritating action. The dose is eight grains, gradually increased to thirty or forty grains, three times a day.]

The following is the most preferable way of prescribing it:

R.	Thiocol	3iii to 3iv	12-16
	Syr. aurantii, q. s. ad	3iii	96

M. Sig. One teaspoonful three times a day.

Removal of Foreign Bodies in the Nose.

Children, while playing with small bodies, such as marbles, buttons, peas, beans, and grains of different kinds, very frequently place them in the nose, and they are removed with difficulty, as well as causing great fright to the child. Keating, in his treatise on "Diseases of Children," recommends that the child, if old enough, be instructed to blow hard or to cause sneezing by tickling the membrane of the nose or by the application of snuff. The body can frequently be dislodged by having the child take a full breath and then give him a smart blow on the back. If not dislodged then close the nostril which contains the body and blow into the other nostril through a rubber tube, instructing the patient to keep the mouth closed; suddenly release the closure of the side occupied by the body. If this does not accomplish the purpose then it will have to be drawn out by forceps or other surgical means resorted to.

Treatment of Gonorrhea.

The following prescriptions, recommended in treatment of gonorrhea are published in the *N. Y. Med. Journal.*

R.	Extracti zeæ fluidi—corn silk		
	Spts. etheris nitrosi, āā	3ss	16
	Balsami copaibæ	3i	32
	Mucilaginis	3ss	16
	Aquæ destil. q. s. ad	3vi	192

M. Sig. A dessertspoonful to be taken three times a day in water.

[The therapeutic agent in this prescription is the volatile contained in copaiba and it should be used more extensively in the subacute stage of gonorrhea. Zea and copaiba both contain resins which promote diuresis.]

FOR WATERY GLEET.

R.	Acidi tannici	gr. iv	25
	Mucilaginis	3i	4
	Aquæ, q. s. ad	3i	32

M. Sig. Use as an injection two or three times daily.

Psoriasis.

The *British Med. Journal* reports the treatment of psoriasis applied by Balzer and Mousseaux, by means of oil of cade baths. The following formulæ are prepared:

R.	Saponis—soft	℥iii	96
	Aquæ	℥vi	192

To this emulsion oil of cade is added in the proportion of:

R.	Olei cadini	℥iii	96
	Emul. saponis	℥viii	256

M. Sig. Add the entire amount to one bath—thirty gallons of water.

The patient is instructed to use plain soap and water to remove the scales before taking the bath. Although not stated, it is supposed that the temperature of the bath should be suited to the patient, as well as the length of time the patient is to remain in it.

Crocker recommends the following to reduce the hyperemia after the scales have been removed:

R.	Calaminæ	℈ii	2 66
	Zinci oxidi	℥ss	2
	Liq. calcis		
	Olei olivæ, āā	℥ss	16

M. Sig. Apply locally after removing the scales by means of soap and water or by immersion in a warm alkaline solution.

Herpes Genitalis.

W. F. Robinson states that caustics should never be used, as grave ulceration may follow their use. He employs the simplest antiseptic washes and observes cleanliness by immersing the parts in a warm boric-acid solution or bathing with the same twice daily and dusting afterward with the following:

R.	Europhen		
	Acidi borici, āā	℥i	32

M.

Duhring recommends the following:

R.	Zinci sulphatis		
	Potassii sulphidi, āā	℥ss	2
	Spts. vini rectificati	℥i	4
	Aquæ	℥vii	28

M. Sig. Shake and apply frequently.

Eczema of Female Genitals.

The following is recommended by Von Schlen:

R.	Ichthyoli	℥iss	6
	Pulveris amyli	℥i	32
	Vaselini	℥ii	64

M. Sig. Apply locally twice a day.

—*Encyc. Pract. Med.*

Tuberculosis.

Daly, in *The Medical Record*, recommends the following pill in tuberculosis:

R.	Camphoræ	gr. ii	13
	Heroin	gr. 1/12	005
	Creosoti	mi	06

M. Ft. pil. No. i. Sig. One such pill three times a day and at midnight.

He reports six cases and says he has found this formula superior to any he has used in treatment of the cough. It is also of great benefit in the cases of nervous depression found in tuberculous subjects. The disorders of the stomach, which are sometimes difficult to combat in phthisical patients, may be indirectly due to cough and this remedy therefore gives relief. When the cause is a local one he has had the best results with the following formula:

R.	Bismuthi subnitratis	gr. xv	1
	Guaiacoli carbonatis	gr. i	06
	Heroin	gr. 1/32	002

M. Ft. tablet No. i. Sig. One tablet after each meal.

The guaiacol has been used in this formula in small doses because it has a tonic effect in the stomach, and the heroin because it has some analgesic power. In the use of this last tablet care must be taken to prevent the constipation which the bismuth may produce.

Ovarian Neuralgia.

R.	Camphoræ monobromatæ	gr. iss	1
	Pulveris capsici	gr. ii	13
	Confectionis rosæ, q. s.		

Sig. One such pill every three or four hours.

—*N. Y. Med. Jour.*

Administration of Quinin to Children.

H. B. Sheffield, in *Med. Times and Register*, recommends euquinin, which is a perfected and practically tasteless preparation, to be given children, as it is a palatable preparation. It may be prescribed in simple syrup. It has the further advantage over quinin in being less apt to produce nausea and tinnitus. For grown-up children he prescribes the following:

R.	Quininæ sulphatis	gr. xxx	2
	Acidi sulphurici dil.		
	Ess. menthæ piperitæ, āā	℥ss	2
	Syr. yerbæ santæ comp., q. s. ad	℥iii	96

M. Sig. Two teaspoonfuls every three hours.

He gives iron in the following combinations:

R.	Vini ferri amari		
	Elixiris aurantii, āā	℥i	32

M. Sig. One teaspoonful three or four times a day; or

R.	Ferri et ammon. citratis	gr. xv	1
	Spts. vini gallici	℥ss	16
	Essence pepsini	℥i	32
	Syr. simplicis, q. s. ad	℥ii	64

M. Sig. One teaspoonful three or four times a day; or

R.	Tinct. ferri chloridi	℥i	4
	Glycerini	℥ss	16
	Syr. zingiberis	℥i	32
	Aquæ, q. s. ad	℥ii	64

M. Sig. One teaspoonful three times a day after meals.

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Medicolegal.

Knows the Sex That Commits Rape.—Section 4221 of the Revised Statutes of Utah of 1898 makes it a felony for any person to carnally and unlawfully know any female over the age of 13 years and under the age of 18 years. The word "male" does not appear in the statute, yet it is well known, the Supreme Court of Utah says, in the case of State vs. Williamson, that no one but a male person could be indicted for the specific offense of rape; and the court, it continues, would construe the statute to mean that a male person only could consummate the offense named therein. So it holds that the information in such a case need not specify the sex of the defendant. Or, more generally speaking, it holds that in a criminal prosecution, where the offense charged is such as only a male person could consummate, the information need not specify the sex of the defendant.

Physician Carelessly Accelerating Death.—When the case of Gray vs. Little was before the Supreme Court of North Carolina for the first time it held erroneous, as stated on page 162 of THE JOURNAL A. M. A., of July 21, 1900, an instruction to the effect that only nominal damages could be recovered for a death where it was only accelerated by the malpractice and negligence of the defendant. But it was sheer inadvertence on its part, it says, on the reappearance of the case before it, that it then referred to an instruction that was asked and not given in a way which led the lower court on the second trial to submit an issue as to punitive damages. The state statute which authorizes the recovery of such damages as are a fair and just compensation for the pecuniary loss resulting from a wrongful killing, which confers the right to recover in such cases, it holds, restricts the recovery to compensatory damages. But is says that it is difficult for it to comprehend how the jury could have returned a verdict of $100 as compensation for the death by malpractice, as was found, of a wife and mother 33 years of age, and it suggests that considerations of humanity would seem to require that the case should be investigated by the solicitor for the district, if the criminal arm of the law has not already been invoked.

Falsely Charging That One Has Leprosy.—To falsely say of one that he has leprosy is slander, and to publish it by writing is a libel, Mr. Justice Gaynor holds, in Simpson vs. Press Publishing Company, at a special term of the Supreme Court of New York, Kings County. Nor does he consider that it makes any difference in this regard if the progress of science has revealed, as was contended in this case, that leprosy was erroneously classed as infectious or contagious. It remains a term of slander, he holds, until the law is changed. Every disease that is infectious or contagious is not embraced within the definition of slander. The bane in the charge of leprosy which made the courts classify it as slanderous was its tendency to cause one to be shunned and excluded from society, and that still exists. But the definition of libel is much broader than that of slander, and any false publication by writing which exposes one to ridicule, hatred, contempt or obloquy, or causes him to be shunned or avoided, is a libel in and of itself, though if spoken it might be no slander. Hence, to falsely charge one in writing with having any repulsive disease or condition which would necessarily cause him to be shunned or avoided, the judge says, would be libel, but it would not be a slander if spoken unless it was one of the diseases embraced within the definition of slander. Moreover, the point that the complaint was insufficient for not stating that leprosy is contagious or infectious, he holds was not well taken, as such an allegation is neither usual nor necessary, any more than to formally plead that to steal is a crime, for the court takes notice of what words constitute slander per se.

Venue of Actions Against Trustees.—The Civil Code of Kansas, after specifying the venue of various classes of actions, local and transitory, provides that every other action must be brought in the county in which the defendant, or some one of the defendants, reside or may be summoned. Under such a provision the Supreme Court of Kansas holds, in State vs. Hornaday and others, a summons to a member of the board of trustees of the charitable institutions of the state may rightfully issue from the court of any county in which such member may be, whether resident there or not, and may be served upon him there; and, when so issued and served, process may rightfully issue from such court to other members of the board, and be served upon them in other counties. It says that the members of the board are possessed of an official character, which accompanies them throughout their respective terms. While, as individual members, apart from their fellows, they may not be able to transact public business, yet they do not take on and put off their official character as the exigencies of the public service require them to convene or separate. They are each of them public officers, liable at any time to be called to the discharge of some of their public duties, and liable at any time to receive notice of public interests requiring their convocation and attention. The duties performed by them do not require their assembly at any set time or at any particular place, but they may meet when and where, within the state, the public service may be best conserved; and they are therefore, the court holds, clothed, everywhere in the state and throughout their respective terms, with the responsibilities and official character of their positions.

Opinions as to Age.—The fourth appellate division of the Supreme Court of New York says, in the case of Hartshorn vs. the Metropolitan Life Insurance Company, that it is well settled that expert evidence is proper where the age of a child is at issue, and that it has often been received concerning the age of an absent adult. But, to entitle such evidence to any weight, the facts and circumstances upon which the opinion is based, the court holds, should be given, and the witness should first describe, as far as practicable, the appearance of the individual whose age is in question. It also remarks that it is common knowledge that an opinion is ordinarily of but little value as to the real age of a person between the ages of 30 and 60. Here, one of the principal defenses to an action to recover life insurance was an alleged breach of warranty on the part of the insured in representing herself to be many years younger than she really was. According to the undisputed testimony of a granddaughter of hers, the insured, if she gave her age correctly in her applications for this insurance, was a grandmother at the age of 27 years, which, although not impossible, the court holds would be sufficiently unusual and extraordinary to require further proof than a mere opinion as to her age, before the conclusion that such fact was established by the evidence would be warranted, and the presumption raised by the baptismal record would be fairly overcome. The opinion referred to was that of the physician who examined the woman on each of her two applications for insurance. He testified that he had known her for three or four years, had made calls in the family professionally, but not upon her, and had called at the house frequently to see others, perhaps two or three times a month, for some time; that she had black hair, was a strong, active woman, appeared in good health, and her occupation was that of a housekeeper. Upon this foundation, he was permitted to testify that he formed an opinion, in a general way, that she was at the time in question about 51 or 52 years of age. But the court says that it is not satisfied that a sufficient foundation was laid to render this evidence admissible, and, again, it declares that upon the facts disclosed by him the testimony of the physician was entitled to but little weight upon the question of the exact age of the insured.

Indictment and Dying Declarations in Abortion Case.—In State vs. Meyer, where the indictment charged an attempt, without lawful justification, to cause the miscarriage of a woman pregnant with child, the Supreme Court of New Jersey held that it was error to admit in evidence the dying declarations of the woman. The reason it assigned for this was that as the legislature, in the crimes act of 1898, declared the act of the accused to be high misdemeanor, whether the woman or child died in consequence thereof or not, the death of either was not an essential element of the crime, but was really a fact to be considered in fixing the penalty. But this reason the Court of Errors and Appeals of New Jersey does not think sound. It says that while it is true that the statute calls the prohibited conduct a high misdemeanor, whether the woman or child die in consequence thereof or not, yet, on due attention to all its provisions, it clearly appears to describe two high misdemeanors—one where the woman or child dies in consequence of the operation, and the other where death does not ensue. And it deems it indubitable that, to warrant the severer sentence, the indictment must charge all the statutory constituents of the more aggravated crime. Its distinguishing feature, the death of the woman or child as a consequence of the attempted abortion, must therefore be alleged in the indictment, and thus made the subject of investigation and proof at the trial. Then, when the death of the woman is thus charged as an element of the offense, necessary to be proved in order to establish against the accused the graver crime and subject him to the severer punishment, her dying declarations, the court holds, are legal evidence. It says that it is aware that the question whether dying declarations can be received when the indictment does not specifically charge either murder or manslaughter has been answered in the negative by some tribunals whose judgments are entitled to very great respect. Nevertheless, after due consideration of those decisions, it prefers to hold that, on the trial of an indictment charging the defendant with the statutory misdemeanor of attempting to cause the miscarriage of a woman pregnant with child, in consequence whereof the woman died, the dying declarations of the woman are legal evidence. Of course, under this decision, an accused person, the court goes on to say, may be exposed to the danger of having the dying declarations of a woman put in evidence when her death is charged as the consequence of an abortion, but is not fully proved to have resulted therefrom, and thus they may be used in the jury room as evidence to convict him of abortion merely, without resulting death. However, such a danger may always exist when evidence is legally received by the court for a purpose not ultimately accomplished, and must be guarded against, as far as possible, by appropriate instructions from the court.

Right of Applicant for Registration to Hearing.—Section 13 of chapter 63, of the New Hampshire Laws of 1897, provides that "every person who is a practitioner of medicine

and surgery in this state prior to the passage of this act shall be, upon satisfactory proof thereof to the regent and upon the payment of a fee of one dollar, entitled to registration," and a certificate of the facts which shall entitle him to practice medicine. An applicant furnished statements of three residents to the effect that he attended them as a physician prior to the passage of the act, and a certificate of the city clerk that he had certified to a death in 1896. His application, however, was denied because he did not comply with a rule of the regent requiring the applicant to furnish certificates of a member of one of the medical societies mentioned in the act and of two well-known citizens that he was a practitioner of medicine and surgery. Now, a practitioner of medicine and surgery, the Supreme Court of New Hampshire says, in Hart vs. Folsom, is a physician and surgeon who habitually holds himself out for the practice of the profession. But the language quoted, it thinks, raises the question of whether it is enough for the applicant to show that he had been such a practitioner in the state at some time in the past, or whether he must show that he was one when the act was passed. The language, it says, seems to refer to the present time—"every person who is a practitioner"—and, although these words are qualified by the expression "prior to the passage of this act," it holds that they can not reasonably be held to refer to persons who had been practitioners, but had ceased to be such when the act was passed. So it thinks that a fair construction of the language is that only those physicians and surgeons who were in practice in the state when the act was passed are entitled to registration, a view which it believes is strengthened by a consideration of the purpose of the act. Then, it holds that it is the duty of the regent to issue a license to each applicant who comes within the provisions of the act. Whenever application is made under section 13, the regent must determine whether the applicant is a physician and surgeon, and whether he was engaged in practice when the act was passed. In performing this duty he acts in a judicial capacity, and is bound to receive and consider all evidence that legally bears upon the questions. If, for any reason, the applicant is unable to furnish such a certificate as the regent may require, the fact does not conclusively show that the applicant does not possess the necessary qualifications. Hence, in this case, while it denies that the applicant was entitled to a writ of mandamus to compel the regent to issue to him a certificate to practice medicine, the court holds that the regent should give the applicant a hearing, and admit all competent evidence bearing upon the questions at issue. If the evidence submitted amounted to satisfactory proof that the applicant was a physician and surgeon in practice in the state at the time of the passage of the act he should be registered; if not his application should be denied.

Current Medical Literature.

Titles marked with an asterisk (*) are noted below.

Medical Record (N. Y.), January 5.

1 *The Prevention and Relief of Post-Operative Intestinal Obstruction. Clement Cleveland.
2 A Case of Estivo-Autumnal Fever With Unusual Symptoms. George L. Peabody.
3 Intestinal Indigestion. A. P. Stoner.
4 *On the Effect of Topical Applications of Excessive Strength, and Improper Diet and Hygiene in Prolonging and Causing Skin Diseases in Infants and Young Children. S. Sherwell.
5 *The Clinical Value of the Heart Reflex. Albert Abrams.
6 A Case of Perforating Gastric Ulcer. A. B. Atherton.

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7 *Observations on Lateral Curvature of the Spine: Pathologic, Clinical, Mechanical. A. M. Phelps.
8 *The Mesial Relations of the Inflected Fissure: Observations Upon One Hundred Brains. Edward A. Spitzka.
9 *The Importance of a Knowledge of Ear Disease to the General Practitioner. William H. Thomson.
10 Some Observations Upon Specialism in the Arts and the Sciences Generally and Upon Specialties and Specialists in the Science and Art of Medicine Particularly. William Bodenhamer.
11 *A Contribution to the Symptomatic Treatment of Pulmonary Tuberculosis. J. R. L. Daly.
12 A Case of Acromioclavicular Dislocation and Its Treatment. Bernard E. Henrahan.
13 Sexual Intemperance. Jennie G. Drennan.

Philadelphia Medical Journal, December 29, 1900.

14 A Suitable Dress for Defense Against Infectious Disease. John S. Fulton.
15 *Rotary Lateral Curvature and Pott's Disease of the Spine: Their Diagnoses and Treatment. A. M. Phelps and D. W. Manton.
16 Fracture of the Extremities. G. G. Ross and M. I. Wilbert.
17 *Ovarian Cysts in Colored Women, With Notes on the Relative Frequency of Fibromas in Both Races. Daniel H. Williams.
18 On the Use of Formalin in the Dissecting-Room. William Keiller.
19 Some Anomalous Cases of Typhoid Fever. Augustus A. Eshner.
20 An Unusual Case of Achylia Gastrica. Frank H. Murdock.
21 New Slide Lifter and Holder. A. H. Stewart.
22 Amputation of Both Feet, the Left Hand and the Right Hand, Saving the Little Finger and Part of the Thumb. J. S. Wright.

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27 A Criticism of the Diagnosis "Composite Teratoma of the Ovary" Made in the "Pathological Report" of Dr. E. A. Jones. S. W. Baudler.
28 Some Cases of Tetany in Infancy. John L. Morse.
29 *The Relation of State and Local Boards of Health to Outbreaks of Diphtheria. G. E. Tyler.

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30 *Experiment and Experience With the Rifle. Henry G. Beyer.
31 *Clinical Notes and Comments: Degenerative Disease of the Spinal Cord Associated With Anemia. Robert T. Edes.
32 The Differential Diagnosis of Intestinal Obstruction. Z. Boylston Adams.
33 A Physiologic Solvent in the Treatment of Pus Gases. Carl E. Munger.

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34 *Management of Pregnancy and Labor Complicated by Cardiac Disease. William Gillespie.
35 Treatment of Stricture of the Rectum. George J. Monroe.

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36 *A Study of Eighty-One Cases Operated on Under Analgesia Obtained by Subarachnoid Spinal Cocainization. George R. Fowler.
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38 Pneumonia: Its Etiology and Treatment. D. L. Burnett.
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40 Some Notes on Dysentery in Hawaii. E. S. Goodhue.
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42 *The Abortive Treatment of Pneumonia, Catarrhal and Croupous, in Infants and Children. H. Illoway.
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44 The Treatment of Neurasthenia. Lewis R. Pierce.
45 *The Union of the Two Diastatic Recti Abdominales in a Single Sheath for Visceral Ptosis. Orville W. MacKellar.
46 *Musical Murmurs of the Heart. I. W. Trent.
47 *Hyperchlorhydria. Alois B. Graham.

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53 *Treatment of Retro-Displacements of the Uterus. Edward McGuire.
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56 Movable Kidney. W. Easterly Ashton.
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64 Surgical Clinic. (Prostatic Carcinoma. Parotid Cyst. Pyorrhea Alveolaris). Robert T. Morris.
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164 Intestinal Surgery. Adolfo Luria.

AMERICAN.

1. **Post Operative Intestinal Obstruction.**—In this article the form of obstruction following abdominal section and indirectly due to it is referred to, not the adynamic type due to intestinal paralysis from peritonitis nor that due to opium, but to that caused by the plastic lymph given out from the peritoneum and favored by handling and by operative lesions of the bowels. The Trendelenburg posture, Cleveland claims, has an incalculably favorable influence in preventing this possibility. He thinks that before beginning to examine the pelvic contents after opening the abdomen it is wise to place the patient in the Trendelenburg posture and carefully cover the intestines with omentum when it is sufficiently developed, and with wet pads of gauze force them as much as possible into the upper abdominal cavity. It is necessary, as far as possible, to leave no raw surfaces, and to cover or cauterize every stump or particle of raw tissue. The use of decinormal salt solution to irrigate the abdominal cavity and leaving the cavity half filled on closing the incision is also commended, as the absorption stimulates the patient, lessens shock and may lessen also the amount of plastic lymph thrown out. The principal point, however, made by the author is the use of oxygen injections, and several cases are reported in which they were employed to advantage. Cleveland says he has been so much impressed with the efficiency of the insufflation of oxygen in every case where he has used it that he intends to always employ it hereafter after abdominal section whenever any obstructive symptoms begin to manifest themselves. It is easily obtainable, and its use is not attended with danger if ordinary care is observed. It not merely has the power to straighten out the intestines and open their lumen, but serves as a stimulant to the peristalsis. Four of the cases detailed were desperate, and in the last he is convinced that life was saved by this procedure. He also suggests that the gas may be absorbed to some degree and enter the general circulation in some form, possibly not as oxygen, and serve as a stimulant and tonic.

4. **Infantile Skin Disorders.**—Sherwell calls attention to the use of strong topical applications as the possible cause of skin eruptions in children, and thinks that the mercurial salves and preparations are especially sinned with in this way. They are usually far too strong for the ordinary use in infants. About 10 per cent. of the people, he thinks, have an idiosyncrasy which causes the milder salves and even pure vaselin to be irritating. Another cause, which he thinks is often responsible for the effect, is intestinal indigestion. Overfeeding is in many cases the primary cause of this trouble; also errors in diet, the use of coffee, tea, etc., in young children. Other points mentioned are the clothing, and he recommends for evacuations in children, mercury and chalk, in preference to rhubarb and soda, and possibly a little compound ipecac powder added.

5. **Heart Reflexes.**—Abrams calls attention to the fact that some years ago he described a phenomenon which he named the heart reflex, consisting in a contraction of the heart body from cutaneous irritation of the precardiac region. It can only be studied with the Roentgen ray. He also refers to another phenomenon which he calls the lung reflex, which can be observed without the aid of these rays. If the skin of the thorax is irritated, lung dilatation ensues. In a previous paper he has suggested the theory that the real factor involved in the Schott treatment was not due to baths and exercise as such, but to the cutaneous irritation provoked, and in accordance with this theory he has employed vigorous cutaneous friction with hand rubbing after immersions of fifteen minutes in a warm bath to increase the sensitiveness of the skin, and can claim results emulating those of the conventional Schott method. He sums up his conclusions in regard to this point as follows: 1. Lung dilatation follows the exercise and bath treatment, the lung acting as an excretory channel for the overburdened heart. 2. The cause of the lung dilatation is dependent on cutaneous irritation induced by the exercise and baths. 3. A decrease in the volume of the heart also ensues and is likewise provoked by cutaneous irritation. The physiology of the phenomenon is noticed, and he remarks that he regards the heart-reflex test as pathognomonic in differentiating dilatation of the heart from pericardial effusion. We have yet to learn its value as an index to the condition of the myocardium.

7. **Spinal Curvature.**—Phelp's article covers about the same ground as the one noticed below. See ¶15.

8. **Inflected Fissure.**—Spitzka's article is a discussion of the position and occurrence of the inflected fissure, which has been somewhat misunderstood by cerebral anatomists, as he points out. Out of 200 half-brains examined by him, absence of this fissure was seen in 40, where it occurred 22 times on the left and 18 times on the right, and it was symmetrical in both halves of 6 brains. In 91 per cent. of the remainder it was situated on a plane, caudad of an unmistakable cephalic paracentral limb, while in the remaining 9 per cent. this limb has become separated from the main paracentral stem by a narrow isthmus, but in all cases it was situated caudad whether separated or confluent; or in other words, the inflected fissure indented and lay partly within the paracentral gyrus. Other particulars in regard to the gyrus are explained in detail and the reader is referred to the original.

9. **Aural Disease.**—Thomson points out the necessity of attention to ear troubles by the general practitioner, and illustrates it by mistakes in his own experience. He mentions the different conditions that may puzzle the diagnostician and the complications that may render them dangerous. In conclusion he offers some remarks in regard to vertigo, especially the aural type. It creates the greatest disturbance of any vertiginous disorder.

11.—See Therapeutic Department.

15. **Lateral Curvature of the Spine.**—Phelps and Manton point out that not every case of so-called Pott's disease is really tuberculous. Deformities similar to those caused by tuberculosis are seen following absorption from Peyer's patches in typhoid fever. Another rare affection resulting in kyphosis is caused by inoculation of the actinomycotic germ, and still another closely simulating tuberculosis is found in osteomyelitis. The germs of osteomyelitis are much quicker in their action and will accomplish in a few days what in tuberculous affections would take many months. These four conditions are commonly included under one head as Pott's disease. Rotary lateral curvature is differentiated from tuberculosis of the spine in that it is never produced by primary inflammation. It is nearly always congenital or rachitic; paralysis of certain muscles, faulty habits of sitting, intercostal adhesions following pleuritic effusions, etc., may be its cause. In tuberculosis the diagnosis should be made before deformity occurs. As a rule, there will be night cries, pain in bending forward, spinal rigidity, etc. If the spine is flexible in its continuity there is no Pott's disease. If it is rigid this condition is certain to be present. In lateral rotary curvature the body of the vertebræ become absorbed by pressure on one side or the other. The treatment must be on rational principles. The authors describe various appliances, but especially favor

the aluminum corset as being practicable, indestructible, and when extensively perforated it makes the coolest and most agreeable of supports, and can be worn during bathing.

17. **Ovarian Cysts in Colored Women.**—The opinion that has been held for a long time that in the colored race ovarian cysts are rare is combated by Williams, who shows from various authorities that there is about as much likelihood of their occurrence in the colored race as in the white. The associated notion that fibromas were more frequent in the colored race than in the white is also contradicted by him. In sixteen years he has operated 357 times in both races and found about 2 per cent. more fibrous tumors in colored women than in the white. His work was in the Freedman's Hospital entirely for colored women, and in both races in private practice. The results are of some interest. He agrees entirely with Dr. Kelly, who has also a favorable geographical position for the study of the question, that myomas are not specially more frequent in the black than the white race.

24. **Primary Branchiogenic Carcinoma.**—Shimanck reports a case, which he thinks is rare, of carcinoma connected with branchial fissure, and reviews the literature of kindred cases.

25.—See abstract in THE JOURNAL, xxxv, p. 1172.

26. **Home Modification of Milk for Infant Feeding.**—Holt gives directions and formulas of the home modification of milk and says in conclusion that three primary formulas can be made to do duty for an entire year in the vast majority of healthy infants. With the method of calculation here given on the basis of 1/20, it seems to be much easier to pass from one formula to another of the same series than by other methods. Since the additions of sugar and lime-water are constant, it is necessary only to calculate the percentage of milk as increased by the ounce in each 20-ounce mixture. The diluent water is in all cases added in sufficient quantity to make the total. Larger quantities than 20 ounces can easily be calculated if our increase is made by 5, e. g., for 25 ounces ¼ more of the milk, the sugar and the lime-water; for 30 ounces ½ more, etc. In securing the primary formula his preference is either for milk fresh from the cow, or the bottled milk, rather than for the mixtures of milk and cream, mainly for the purpose of securing greater freshness. Where milk is obtained fresh from the cow, if it is placed in a bottle and rapidly cooled in the manner indicated, not only will the cream rise quickly so that the food may be made up when the milk is only four hours old, but at the same time this rapid cooling is of the utmost advantage in checking the early fermentative changes in milk. In taking the milk from the top of the bottle it is to be remembered that the entire number of ounces specified for the primary formula should be taken, although it may not be needed to make up the milk for weaker formulas.

29.—See abstract in THE JOURNAL, xxxv, p. 579.

30. **Experiments and Experiences With the Rifle.**—Beyer's article is largely an analysis of Kocher's paper, "Zur Lehre von den Schuss-wunden," Cassel, 1895, and a comparison of the experimental results obtained by him, which coincide with the actual experiences reported in war by Senn, Nancrede, La Garde, Sir William MacCormac, Treves, Dent, and others. His conclusions coincide with those of La Garde, who says that we should conclude that the work of the experimenters agrees with the conditions found in war. The trained military surgeon can, he claims, be trusted to read the range in the character of the wound before him with at least the same accuracy as a range-finder can.

31. **Anemic Degenerative Diseases of the Spine.**—Edes reports several cases of spinal degeneration associated with anemia and discusses the condition. In one case there was a post-mortem and the results found were described. They consisted in isolated areas of degeneration in the lower lumbar region only in the posterior columns, but at the level of the first lumbar nerves there were distinct patches in the postero-lateral columns and in the anterior horns. In the upper cervical region corresponding areas were also found, and in the medulla at the level of the olivaries, though ill-defined. The cause of the condition is attributed largely to toxemia rather than to anemia. It is possible that syphilis has something to do with the etiology, as English observers seemed to find this in a considerable proportion of cases. The symptoms are numbness, inability to use the hands for fine work, numbness of the feet, general weakness of motion and co-ordination, and deep reflex exaggeration. Later there may be more or less extensive anesthesia, absolute paralysis and absence of deep reflexes.

34. **Heart Disease and Pregnancy.**—The dangers of cardiac disorders in pregnancy are always obvious, but there are two possibilities: 1. Pregnancy is apt to relight an old endocardial inflammation, and the more recent the original attack the greater the danger. 2. Dangers from pregnancy affect women suffering from cardiac disease in proportion in which one pregnancy follows another. In a case of compensated valvular disease we rarely see failure in this respect in the first four months, but where compensation did not previously exist it is not likely to occur early in the pregnancy. The rational treatment in such cases is abortion, for a viable child is hardly to be expected and it would be folly to add to the overburdened heart the strain of useless pregnancy. In the second class the author includes the cases where lost compensation occurs in the last half of pregnancy and from great increase of the work of the heart the strain increases from day to day. Sometimes the failure is due to relighting of an old endocardial inflammation. When left to nature the chances are that the woman will not go to term. The question arises whether we should try to carry the mother past the seventh month, and if by the use of cardiac tonics the circulation can be restored we may be justified in waiting. Gillespie does not feel certain of the advisability of this course, but is not certain of the contrary. As a heart tonic, theoretically, the therapeutic action of strophanthus is preferable to digitalis, and is safer. Strychnia also produces good effects. The bowels should be looked after and absolute quiet insured, as exercise does not help the matter. If the condition of the heart does not improve and hyperemia of the liver manifests itself, and digestion is disturbed, and especially if the urine shows albumin with casts, medical treatment is useless. Whenever labor occurs, whether early or late, it must be conducted so as to incur as little strain as possible, and he does not think that anesthetics are contraindicated by cardiac disease. The usual methods will not suffice in induced labor. Rapid manual dilatation and extraction by the feet is the safest, as being the least exhaustive, and also offers the best possibilities of delivering a living child. The hydrostatic bags are applicable in many cases. A case is reported illustrating the points made in the paper. The author concludes that it is not safe to wait for development of the heart symptoms. They should be anticipated and in every case where the heart is in ill health forceps delivery is advisable as soon as compatible with other conditions.

36. **Spinal Cocainization.**—Fowler reports his experience in 81 cases up to the present time, in 26 involving the peritoneum. In 5 of these the analgesia was incomplete and in all the cases there was some embarrassment to the operator at one or another stage of the operation, such as vigorous peristalsis of short sections of the intestinal canal, and a certain amount of pain in 5 cases. The patients did not complain of a moderate Trendelenburg posture, but did express discomfort when an extreme pelvic elevation was employed for a long time. In 34 cases the operation was in the pelvic region, not involving the peritoneum. In two cases of varicocele the patients complained of pain when the cord was handled, but not enough to require additional anesthesia. In one case of colporrhaphy and perineorrhaphy the sensation returned too soon, and it became necessary to administer general anesthesia. In five amputation cases anesthesia was complete and the length of time it lasted was ample. In 15 cases in the lower extremities, not included in the above, a second injection was required to be made, and in one case of ligation of the internal saphenous vein the patient heard the operator call for a knife and afterward complained of pain on the slightest touch. In 3 un-

classified operations, including costal resection, nephrectomy and operation for suppurating dermoid, in the first operation the patient complained of pain when the periosteum and intracostal nerve were peeled off the bone. In the case of nephrectomy the patient disbelieved that the kidney had been removed, and in the case of suppurative dermoid the line of demarcation of anesthesia was slightly below the point where it was necessary to incise and curette. It persisted at the same height through the whole depth of the wound. The technique of the operation is described, its difficulties and certain disagreeable features that occur, such as vertigo, vomiting, involuntary defecation and urination, which occurred in about one-eighth of the cases, and were unpleasant both to the patient and to the operator. His cases were not selected ones. He has no personal knowledge of any deaths from spinal cocainization, and his experiments with other drugs than cocain are not altogether satisfactory, though he has found the combination of antipyrin and cocain to give somewhat better results so far as the analgesia was concerned. In spite of favorable results, he wishes to say that he does not consider this the ideal method of anesthesia, but that it will have an important place and sphere of usefulness. Further trial and the study of a large number of cases will be required to establish its limitations and dangers.

39. **Hysteria.**—Fraenkel has had three cases of fatal hysteria and discusses the possibilities. He asks three questions: Is hysteria curable? He answers in the affirmative. On what conditions does this curability depend? While we are still awaiting the pathologist's solution of hysteria, the answer to this question is somewhat difficult, but he is inclined to think that monosymptomatic cases are most indicative of serious lesions. The symptoms are generally discussed, and he divides the disease into three types: 1. Predominantly mental forms, hysteric psychoses with more or less pronounced somatic symptoms. 2. Predominantly cerebrospinal forms. 3. Predominantly splanchnic forms, where the symptoms are mainly of irritation or paralysis of the motor or sensory side of the splanchnic nervous system. In all these three groups we have the symptom-complex of hysterical seizures. The prognosis of the first two groups is, according to his experience, more favorable than the prognosis of that of the third, which has sometimes been disastrous. To answer the third question, "Is hysteria ever fatal?" he notices the authorities that previously reported fatal cases, and details his own. He accredits the deaths to: 1. spasm of the respiratory mechanism; 2. inanition from prolonged hysterical anorexia or vomiting; 3. paralysis of the circulatory or alimentary apparatus, in his last case with a pseudo-peritonitis or a pseudo-ileus. However, it may be with genuine uncomplicated hysteria, death, when it occurs, is due to irritation of the splanchnic and vegetative functions, and cases of this type are to be judged cautiously as regards their future prospects.

42. **Abortive Treatment of Infantile Pneumonia.**—Illoway answers the question whether pneumonia can be aborted, in the affirmative, according to his own experience, and maintains that we have long had the means wherewith to do it. He divides his cases into two groups, according to the therapeutic treatment adopted. In the first class he found benefit from the combination of tinctures of veratrum viride and of aconite, usually giving 6 drops of the veratrum and 2 of the aconite in a one-ounce mixture for children of several years of age and in proportion for infants—a teaspoonful at short intervals until four or five doses are taken and then at longer intervals. In each case the disease was quickly brought under control. In the second class of cases his treatment was infusion of digitalis, though the first combination of aconite and Norwood's tincture is the most powerful and preferably the method of medication. The doses, of course, are very small and the treatment is therefore comparatively safe. Another point of importance in the treatment of children is that it is pleasant to take.

45. **The Union of the Recti in Abdominal Ptosis.**—MacKellar reports a case of pronounced gastroptosis and nephroptosis of the right kidney in which the recti abdominales showed marked distinct diastasis. The operation to relieve the condition was the splitting of the sheaths of the recti muscles on the anterior surface and uniting the two in one sheath by suturing the sheath on the posterior and anterior side of the two enclosed muscles. The patient made a good recovery and passed through her pregnancy without any separation of the parts, and the visceral ptosis has remained practically cured.

46. **Musical Murmurs of the Heart.**—The opinions of authorities are first given by Trent, who then reports a case in which there was a continuous loud musical murmur of the heart from over the cardiac region with the greatest intensity about the mid-sternum on a level with the third costal cartilage. The sound was constant and so loud that it troubled the patient at night, keeping him awake, and other members of the family were also disturbed by it. It resembled the cooing of a dove. The man died suddenly; the post-mortem showed aortic insufficiency to a very marked degree, which was the cause of death. From this and the literature on the subject the author concludes that musical murmurs of the heart are freaks and are important simply as indicating serious organic lesions, and interesting only because of their rarity.

47. **Hyperchlorhydria.**—The points made by Graham in this article are the frequency of the condition and its easy diagnosis by the stomach-tube, and the importance of determining whether or not we have a primary or secondary hyperchlorhydria, and treating for the removal of the predisposing cause.

52. **Bacteriology of the Stomach.**—Kellogg's article reports the findings of bacteriologic examinations of the stomach fluid in various conditions, and his conclusions are summarized as follows: 1. A healthy stomach does not require the aid of germs in the digestion of foods. 2. Sterile food is digested in the healthy stomach without the development of bacteria or other micro-organisms. 3. Neither free hydrochloric acid nor combined chlorin, even when present in excess, is a certain means of sterilizing the gastric contents. 4. The gastric contents may be found sterile after a sterile test-meal in cases in which free hydrochloric acid is entirely absent and the proportion of combined chlorin small. 5. Fruits, especially fresh fruits, and fruit juices, are capable of completely sterilizing the stomach when used in sufficient quantity.

53.—This article has appeared elsewhere. See THE JOURNAL, XXXV, title 12, p. 1657.

60. **Bone Shaft Fractures.**—Manley reviews the subject of fractures of the long bones and summarizes his conclusions as follows: 1. The nearer the fractures of the bone shaft are located to the joint the more serious the result. 2. When complicated by subluxation, or when the fracture extends into the articulation, troublesome complications are quite certain in a large proportion of cases. In this class the osseous lesions may be non-important as compared with the change to the articular structures, large blood-vessels and nerves. 3. The symptoms of joint fracture are not unequivocal. There are no special characteristic symptoms in the pain of luxation, sprain or fracture. As a rule, after reaction sets in the suffering is greater in joint than in any other fractures. 4. The definite diagnosis of position and quality of intra- and extra-articular fractures is often difficult and sometimes impossible. When the fragments are not displaced, the application of great force under anesthetics to verify the diagnosis is unjustifiable unless the patient insists on it. In consequence of the frequent errors and uncertainties of the use of the X-rays without other confirmatory evidence their employment as diagnostic agents in these doubtful lesions is unreliable. 5. The primary treatment of closed intra-articular fractures or those in close proximity to the joint in general must be recognized on these fundamental principles everywhere. In intracapsular fractures at the hip, with proper antiseptic precautions, primary resection of the distal fragments will shorten convalescence, spare the patient needless suffering and leave a better limb than when the articular head is retained. 6. In a considerable proportion of aggravated cases in young persons, consecutive osteoplastic surgery will frequently give the

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best results. This is only resorted to after acute symptoms have subsided.

61. **Intermittent Hydrops of the Knee.**—Cale reports a case of this condition, which he regards as a rare condition. One patient will have an attack occurring every eight days; another, occurring every eleven days, etc. In individual cases we rarely see any irregularity in the time of recurrence. Another peculiarity is that it disappears during pregnancy. He finds no mention of it in American text-books. He is inclined to consider it as possibly due to infection by some micro-organism having a regular cycle of life within the period of its occurrence.

63.—See abstract in THE JOURNAL, XXXV, p. 1048.

69. **Multiple Fibromata.**—Preble and Hektoen report very elaborately the post-mortem findings and pathologic examination of multiple fibromata in a case of arthritis deformans. They remark that the case is an extreme degree of a not uncommon condition, that of generalized neurofibromata, which is rather of more than ordinary interest because it presents certain rare if not unique features from the joint disorder and trophic changes in the skin. The general subject of neurofibromata is discussed. In this case besides the joint affections, which were those of well-marked arthritis deformans, there was ulceration similar to perforating ulcer of tabes, and the spontaneous gangrene of one foot was looked upon as also of trophic origin connected with the general condition.

70. **Cholelithiasis and Pancreatic Disease.**—The object of this article is to direct attention to the occurrence of pancreatic disease as a complication of gall-stone colic, the method of its occurrence and the nature of the lesions that occur. The anatomy of the parts is described and a case reported where lesions of the pancreas were associated with impaction of the stone near the orifice of the common ducts. It is held that the primary cause of lesions in and about the pancreas in this case was the interference with the outflow of pancreatic secretion from a lodgment of calculus in the common duct, and in support of this view Opie has collected a number of cases from the literature in which there were lesions of the pancreas with necrosis of surrounding fat or both, and lodgment of the gall-stones near the orifice of the common duct, thus showing the similar etiology of the symptoms. The author says in conclusion that should the lodgment of the stone occur in this position where it may at the same time compress and occlude the duct of Wirsung and become impacted, there are cases reported to show that one or several conditions may result: 1. An individual, usually in fairly good health, with perhaps a history of previous gall-stone colic, is suddenly attacked with pain in the epigastric region, accompanied by vomiting and followed by collapse. Death follows usually within forty-eight hours, and at autopsy gall-stones are found in the bile-passages, while that one which caused the fatal attack may still be lodged in the common duct near its orifice. The pancreas, is enlarged, infiltrated with blood, and hemorrhage may have occurred into the surrounding tissue. Foci of fat necrosis are usually present. 2. A fatal termination may not follow rapidly the symptoms mentioned. Pain in the epigastrium persists, jaundice may be present, and a tumor mass above the umbilicus may indicate a probable lesion of the pancreas. At the end of one or more weeks or months death occurs, often with symptoms indicating the presence of suppurative inflammation, presumably in the neighborhood of the gland. At autopsy the diagnosis of cholelithiasis is confirmed by the presence of gall-stones in the gall-bladder or in the bile-ducts, and occasionally the offending calculus is still lodged near the junction of the common bile-duct and the duct of Wirsung. The pancreas is dry, black and necrotic, and evidence of previous hemorrhage may be present. Secondary infection has occurred and the pancreas lies in an abscess cavity formed by the bursa omentalis. In the wall, and often widely disseminated in the abdominal fat, are foci of necrosis. Since the individual has survived the primary lesion, opportunity has been given for the development of secondary changes in the injured pancreas and neighboring fat. 3. In certain instances long-continued or repeated obstruction of the pancreatic duct by gall-stones does not cause the acute lesion described, but produces chronic inflammatory changes.

72. **Asthenic Bulbar Palsy.**—Burr and McCarthy report an additional case to the few already known of this obscure disorder. They ask, in discussing the condition, where is its locality and what is its nature. The morbid anatomy is at fault here and we are obliged to fall back on general physiologic and pathologic laws and draw inferences from analogous affections. They think there is little direct post-mortem evidence in favor of the bulb as the seat of disease. The slight changes that have been found were in it and the cranial nerves. While they are insufficient to cause the symptoms they may indicate the action of the toxins. The symptoms certainly point toward the bulb as the part first and most seriously affected. They conclude, considering everything, that it may be said with comparative safety that the affection is one of the lower motor neurons, but whether the cell bodies or the axons are the first and most affected can not yet be determined. Primarily the disease may be in the motor muscular end-plates. The disorder certainly looks like a toxic disease. It frequently follows some mycotic affection, and kills without visible wounds. In the case reported they are inclined to think that pregnancy had some positive influence. The patient was pregnant at the first onset, and again when the condition took a serious turn. The fact that pregnancy may seriously disturb metabolism in the kidney disorders, multiple neuritis, and the greater tendency of pregnant women to certain diseases is well known. In this case the smallness of the bulb, which was developmental not secondary, might have had some influence. What nervous elements were present were normal, but fewer than usual and may have been dynamically weaker. It is possible that the ill-developed bulb was unable to withstand the stress of pregnancy. The second case reported was that of a young woman who had complained of general neurasthenic symptoms and emotional disorders and dated her troubles from an attack of la grippe. With general weakness there was numbness of the limbs starting in the left arm and gradually extending. There was also slight vertigo, blurred vision, and occasional diplopia. The ocular muscles revealed nothing specially important excepting a constant right hyperphoria. There was a certain degree of facial paralysis which extended involving the entire side; excruciating pain in both ears, some trouble in hearing and a suggestion of bulbar paralysis. After a few months, however, she completely recovered. As regards the treatment of asthenic bulbar palsy the authors say there is no specific. Electricity is dubious, massage is useful and arsenic is the one drug that seems to be of benefit.

73. **Gonorrheal Ulcerative Endocarditis.**—From a study of the cases reported, Lartigau offers the following conclusions: 1. Gonorrheal urethritis may be the starting-point for a fatal septicemia induced by a pure infection with the gonococcus. 2. Endocarditis and arthritis are occasionally complications of such an infectious disease. 3. The endocardial processes may be incited by the gonococcus without the association of other organisms.

74. **Obstructive Biliary Cirrhosis.**—Ford reports the literature of cirrhosis of the liver with special reference to the frequency of the type which seems to stand in etiologic relationship with pressure on the common bile-duct of an enlarged gland of the hilum of the liver. Some twenty-four cases are more or less briefly reported. Ford concludes his paper as follows: From the study of the cases of cirrhosis seen in Montreal, and from a review of the cases reported by other authors, together with the observations of experimental pathologists, we are justified in drawing a number of general conclusions: Complete obstruction to the flow of the bile in animals produces a cirrhosis of the liver, interlobular in character, of considerable extent, provided the animals are allowed to live a sufficient time after primary operation. This cirrhosis is due to the damming back of the bile per se, and not to the inflammation of the walls of the smaller bile-channels. In man, complete obliteration of the bile-ducts caused by pathologic changes leads to cirrhosis of the liver which can not be explained simply by damming back of bile, but must be considered to have, as an

added etiological factor, that inflammation of the walls of the biliary channels which is invariably present. The type of the cirrhosis of the liver seen in man subsequent to obstruction of the bile-passages can not be differentiated anatomically from the type of liver seen in Hanot's hypertrophic cirrhosis with jaundice. The symptom-complex of obliterative cirrhosis is so absolutely different from Hanot's cirrhosis in the variety of its symptoms and in the frequency with which they occur as to justify the statement that obstructive biliary cirrhosis is a distinct morbid condition quite apart from any other variety of cirrhosis of the liver.

75. **Dorsal Dislocation of the Trapezoid.**—Sheldon reports a case of this rare condition, and reproduces the account of the only other case—that of Gay—which he has been able to find in the literature. After discussing the anatomy of the condition he thinks it probable that in Gay's case and in the one that came under his own care there was a congenital weakness or absence of the ligaments or a mal-development of the carpal bone or a combination of these conditions, which rendered an uncomplicated dorsal dislocation of the trapezoid possible.

80. **Vaginal vs. Abdominal Hysterectomy for Uterine Cancer.**—The advantages of each form of operation are discussed by Boldt, who finds vaginal hysterectomy has a smaller opening of the peritoneal cavity, greater rapidity of operation, less shock, more rapid convalescence, avoidance of abdominal wound, and lessening of direct mortality. The objection that one must work in the dark does not hold good excepting when the bladder is separated from the cervix and then the work can be kept within sight to a great extent by proper use of retractors. The advantage of abdominal hysterectomy is that it permits more extensive removal of the lymphatic and surrounding glands. The only case where its use is at present indicated according to his view is where the uterus is too large or too adherent to be removed by the vagina without morcellation and those cases where the diagnosis of glandular enlargement is made.

81.—See abstract in THE JOURNAL, XXXV, p. 1425.

82. **Uterine Irrigation.**—The treatment here suggested by Talley for chronic inflammatory disease of the uterus is irrigation with hot alkaline water, and he uses for this purpose a narrow canula provided with two wires so as to allow the return flow of irrigating fluid and permit the uterine canal to be washed to its entire extent. The canula is curved at its end to provide for easy introduction, perforated in every direction at its extremity and of such a size that it will easily pass through a No. 15 French catheter scale. It is attached to a fountain syringe of at least two quarts' capacity and a thermometer should be used to determine the temperature of the water. He has also used a speculum with a funnel through which the return fluid may pass without danger of wetting clothing or bed. The solution used is water with 1 dram of bicarbonate of soda to a quart and enough carbolic acid to render it mildly aseptic. He never has the temperature above 123 F. and usually somewhat less; about 110 at the beginning and gradually increasing it. It is important that the irrigation should be carried on until its secondary vasomotor effects are insured. Cases amenable to this form of treatment are those in which the cervical canal is patulous.

83.—See abstract in THE JOURNAL, XXXV, p. 1501.

85. **Proctorrhaphy.**—Noble reports three cases in which he operated by fixation of the rectum to the abdominal wall in case of prolapse of that organ. The operation he proposes is to open the peritoneal cavity by an incision made through the left rectus muscle slightly below the promontory of the sacrum, to search for the sigmoid or for the rectum and make traction upon it until it is inverted and the "slack" has been taken up. The point at which the lower portion of the rectum will come in contact with the abdominal wall on slight tension should be determined and this point attached to the abdominal wall by three or more fine silk sutures passed so as to include a portion of the rectus muscle and should pass under the anterior longitudinal band of the rectus. In this way the bowel can be firmly attached with less danger of penetrating its cavity and with the best prospects of producing permanent effects. The abdominal wound should then be closed by the tier method.

93.—This article has appeared elsewhere. See THE JOURNAL, XXXV, ¶98, p. 1511.

94.—See abstract in THE JOURNAL, XXXIV, p. 1338.

95. **Marchand's Adrenals.**—Warthin reports the case of an adrenal body found in the broad ligament, with its structural and microscopic examination, and discusses to some extent the literature. Noticing Aichel's paper, he adopts his suggestion to call these growths "Marchand's adrenals," since Marchand was the first to observe and describe them. He says in conclusion: It may be said that while Aichel's results need further confirmation, it is very probable that his view is the correct one, and that adrenal tissue is a normal constituent of the broad ligament. The practical importance of this is very great, and not only to the physiologist and pathologist, but to the clinician and gynecologist as well. Without doubt we have in Marchand's adrenals certain anatomical elements which may explain pathological conditions of the broad ligament and testis heretofore enveloped in mystery. Many tumors and cysts of these regions, whose origin is now unknown to us, may be shown by future observation to be derived from these little organs.

97.—See abstract in THE JOURNAL, XXXV, p. 1424.

98. **Sexual Feeling and Removal of Ovaries.**—In the case reported by Smith there were misplaced and inflamed ovaries causing the patient misery, with complete absence of sexual feeling. The ovaries were removed, as the patient had been under medical treatment for years without benefit. The result was restoration to health and complete restoration of sexual feeling, which had heretofore been absolutely absent. The cure seems to be permanent and he agrees with Lawson Tait that in cases of useless and diseased ovaries the removal of the diseased structure restores the normal conditions and does not unsex the woman.

107. **Lupus Vulgaris.**—Everett Smith reports a case of lupus of fifteen years' standing cured by application of the X-rays. A mask was made of sheet lead for the face, with a hole over the diseased portion, and this was exposed to the X-ray about every fifth day for about twenty minutes at a time, the surface being placed two inches from the light. In all, twelve treatments were given, and no medicine was used, even vaselin was denied him. After the second treatment healthy granulations appeared and healing was rapid.

108. **Cholelithiasis.**—Eugene Smith discusses cholelithiasis from the surgeon's point of view, reporting two cases to illustrate his points. He sums up the indications for operative treatment under two headings: In the first place, operate for biliary calculus obstruction along the bile-tracts which has in its train of sequelæ recurring colic, hydrocholecyst, persistent jaundice and cholemia; in the second place, operate for sepsis of the bile-tracts when it develops such dangerous conditions as suppurative cholangitis, suppurative cholecystitis or perforation of the duct or cholecyst. In both classes suffering and death are to be dreaded in the majority of cases more from the disease and its sequelæ than from the surgeon's knife.

116.—See abstract in THE JOURNAL, XXXV, p. 447.

117.—Ibid., p. 578.

121. **Incised Wounds.**—The method described by Bretz for coapting superficial incised wounds consists in fixing a piece of adhesive plaster on either side of the wound after thorough cleansing and putting the suture through the plaster instead of through the tissues themselves. In this way he thinks better coaptation is obtained than when it is put through the skin, is less painful; it avoids stitch-hole abscess, prevents stitch-marks, and there are no stitches to pull out. He illustrates the method for various forms of wounds.

132.—See abstract in THE JOURNAL of June 2, p. 1416.

133.—This article has appeared elsewhere. See THE JOURNAL, XXXV, p. 267.

135. **Iodized Starch.**—Solomon recommends the use of

iodized starch made by triturating 5 parts of iodin in a small quantity of water with 95 parts of starch slowly added and carefully rubbed until the mixture is regularly and uniformly a blue-black. It is slowly dried at a temperature not higher than 140 and carefully rubbed into a fine blue powder. We then have a 5 per cent. iodized starch, insoluble in water, with characteristic iodin taste and slight odor. It should be kept in glass-stoppered bottles. He has used this whenever iodin is indicated and thinks its action is prompt and in the proper dose energetic. The dose recommended by some authorities is, he thinks, too small. He has found from 3 to 10 grs. in capsule, pill or powder necessary to produce the desired effects. Its advantages are that it is physiologically an active preparation for both external and internal use and free from the irritation and caustic action of most of the iodin preparations. It is not objectionable to the senses and is stable enough to be kept indefinitely with reasonable care.

148. **Dentigenous Cysts.**—Cobb reports cases of this anomaly and concludes that the cysts are not, as Albarran suggested, due to epithelial secretion from the cells of the gubernaculum dentis, but rather, as Dr. Edward Briggs believes, an inflammatory process originating about the diseased teeth, which is characterized more by excessive secretion than by active destruction. The prognosis is also of interest, as he would not believe that so large a bony swelling as occurred in his cases would subside in so short a time. From this series he thinks dental disease can be eliminated and operation avoided. The salient points of treatment are free drainage and careful dental treatment.

154.—See abstract in THE JOURNAL, XXXV, p. 1425.

FOREIGN.

The Lancet, December 29, 1900.

Calcium Iodate as an Iodoform Substitute and Gastro-Intestinal Antiseptic. WILLIAM MACKIE.—After first noticing the work of Sonstadt in regard to this drug, the author gives the theory of its action as an antiseptic. It is an iodin compound containing 51 per cent. of iodin, and in addition 16 per cent. of available oxygen. On contact with putrescible organic matter, whether in acid or in alkaline media, it slowly liberates iodin. In alkaline solution, while the organic matter is being oxidized by the oxygen set free from decomposing iodate, the iodin by a reaction well known to occur in alkaline media slowly re-forms iodate, through the decomposition of water. The iodate so re-formed in contact with another portion of putrescible matter yields further proportions of free oxygen and iodin to act as before, and so on. The process is, therefore, a continuous one. As most pathologic discharges are alkaline we have in such cases the necessary conditions for the continuous action of the iodate. In acid media in the presence of reducing substances iodin is liberated and by the decomposition of water sets free oxygen, which is used up in oxidizing any unstable organic compound which may be present. The iodin in these cases passes into hydriodic acid or an iodid, and so eventually ceases to act. If, however, the acid is hydrochloric, as in the gastric juice, chlorin is liberated in the greatest abundance. Chemical equation shows that calcium iodate in contact with hydrochloric acid liberates nearly four-sevenths of its weight of chlorin, and on this fact its use theoretically as a gastrointestinal antiseptic is based. Something no doubt depends on the chemical instability of iodates generally, and on this one in particular, on the nascent action of the liberated products, and in this case that the base forms insoluble compounds such as carbonate and phosphate in contact with alkaline discharges, thus probably facilitating the free operation of the acid radicle, and on such its particular virtue depends. It would appear, therefore, that calcium iodate acts more as a destroyer of the products of bacterial life than as a bactericide. Mackie thinks, however, that its inhibitory power on bacterial growth can not be questioned, and it thus closely conforms to iodoform in its action. The function of the salt as a deodorant can be easily understood as a result of its chemical action. Iodates decompose sulphuretted hydrogen, precipitating it in part as sulphur, in part oxidizing it into sulphuric acid. The substance is easily prepared by any chemist by mixing iodin in a solution of potassium iodid with bleaching powder and washing with cold water. It is a white powder without taste or smell, soluble in 390 parts of water. Even in this solution, however, it is a powerful antiseptic, which he shows by reporting experiments similar to those made by Sonstadt. A piece of meat, for instance, was suspended in a saturated solution of the salt and found perfectly fresh at the end of a fortnight. A few grains of the dry salt thoroughly deodorized very fetid pus, etc. Cases are reported by the author, of fetid breath, septic wounds, discharges of ulcers, otorrhea, abscess, etc., treated successfully with this drug. He has also used it in cases of septic bladder, with advantage in all and perfect cure in at least one, also as a vaginal douche and for chronic urethritis. Speaking generally he says calcium iodate has been used in almost all cases where iodoform is commonly used. He has not, however, applied it to cut surfaces of amputation flaps, though he has in several cases powdered the sutured edges after minor operations for diseased conditions. In all operations where the surfaces are left to granulate he has used it by dusting the dry powder on the surfaces, and in no case has there been any irritating or toxic action. Even children do not complain of any smarting after its use. Its advantages as compared with iodoform may be summarized as absence of smell, checking of fetor, prevention of hyper-granulation, and the inhibition of undue formation of pus. It can be used, moreover, where iodoform is inadmissible, in gargles, washing out the bladder, etc. Internally he can testify to its efficiency in checking fermentative gastric changes. He has frequently taken 2 grains and sometimes repeated the dose twice and even a third time during the day without any inconvenience, and always with marked relief. It leaves a slight metallic taste in the mouth for a little while, but this is not observed after repetition. On the day after a dose of 2 grains there is a feeling of general well-being and increased appetite, and for this reason he is inclined to think that it has some tonic properties. Sonstadt took as much as 15 grains at one time with a very slight headache the next day, and such effects as might ordinarily follow a dose of quinin. Mackie would prefer to give the drug in solution, as he has noticed a feeling of heat in the epigastrium after swallowing the dry salt. Sonstadt's maximum dose of 15 grains is a long way in advance of any possible requirement. Three or four grains may be given as a fair average for the adult.

Circumcision as a Preventive of Syphilis and Other Disorders. E. HARDING FREELAND.—The writer argues for circumcision as a preventive of syphilis, showing statistics from Hutchinson and others giving reasons why this should be effective. He thinks that in the ordinary operation too much is left and too little is removed, and the protection in this regard is therefore lost. He would also advise, with the thorough removal of the prepuce, taking away a wedge-shaped piece of frenum and thus obliterating the folds which exist on its side. He believes that if the practice were general a great and lasting benefit would be induced.

On a New Method in the Discission of Soft Cataracts. PERCY DUNN.—This writer advises in the treatment of soft cataracts by discission to avoid increased tension by draining away the aqueous before withdrawing the needle. It is reasonable, he says, to conclude that the condition of the lens after the needling would determine the degree of restored tension. With a swollen lens the aqueous would probably only be resecreted to the amount needful to restore the normal tension, and he does not think it possible to conceive that the glaucomatous symptoms could arise under these circumstances. Another advantage of the method is the possibility of freely breaking up the lens, and still another, the rapid absorption of the soft lens matter. A lowered tension implies a more rapid circulation of fluid through the eye and is exactly the condition of affairs to be most desired for rapid absorption. He reports a case in which he carried out these methods with the best results. The only possible untoward complication that could ensue is that of iritis originating from mechanical irritation caused by the presence of broken-up lens matter, but the doctrine that mechanical irritation per se can excite inflamma-

tion anywhere in the tissues is not one which at the present day receives support of scientific testimony. In senile cataract no difficulty is experienced in obtaining a fairly rapid absorption of the lental débris which it has been found impossible to remove after extraction of the lens, a result which he thinks is chiefly due to lowered tension in the eye caused by the necessary steps of the operation in this case.

Indian Medical Gazette, December, 1900.

The Cause of Beri-Beri. E. R. ROST.—From a suggestion in an article in the *British Medical Journal* of the connection between rice and beri-beri, Rost examined various rice waters and liquors and found one organism in all which is also found in damp rice, and in the prolonged examination of the blood of a beri-beri patient the same peculiarly shaped organisms were noticed. They were also later found in the cerebrospinal fluid, serous exudation, and in the sheath of the sciatic nerve on post-mortem. Cultures in sterile rice broth, beef broth, in blood, hydrothorax fluid and ascitic fluid were made and the morphology of the organism was observed. It is a diplobacillus, generally seen as an angular organism, developing by spores. Double dumb-bells are seen as well as single knobs or rods; it is easily stained by carbol-fuchsin. It multiplies with great rapidity, will grow best in rice broth, ascitic fluid and hydrothorax fluid, and with difficulty or not at all on solid media, except coagulated blood-serum. It was found that it can withstand a temperature of eight hours at 220 F., but after the ninth hour the cultures gave negative results. Sterilization for long periods is therefore necessary. He has found this organism in 32 cases of beri-beri in the blood. In rice its appearance is that of a fibroid clammy coating sticking the granules together. He thinks rice-eating, and especially drinking rice liquor, is the principal cause. The most important point, he remarks, is its vitality, which calls for a better method of cooking rice than is often employed.

Presse Medicale (Paris), December 1, 22 and 26.

Rennet Ferment in Gastric Juice. L. MEUNIER.—Investigation of the rennet ferment in the gastric juice of forty-two individuals in various pathologic conditions showed a striking coincidence between the clinical prognosis and the amount of rennet action in the gastric juice. The rennet also affords valuable information in regard to the secretion of the gastric mucosa in the same way as the pepsin, while the tests are much easier than for the latter.

December 22.

Is the Bacillus Coli Agglutinated by the Serum of Typhoid Patients? P. COURMONT.—The results of tests on twenty-five typhoid-fever patients showed that the bacillus coli, as a rule, was not agglutinated by their serum at any stage of the disease. When agglutination occurred it was very feeble, no more than is frequently observed in normal blood, and not at all proportionate to the intensity of the agglutination of the typhoid bacillus.

December 26.

Lavage and Ferric Chlorid in Treatment of Round Ulcer. R. ROMME.—Bourget is not an advocate of surgical treatment of all cases of round ulcer. He thinks that good results can be attained by resting the stomach, diminishing the secretion of the irritating gastric juice, and aiding cicatrization with ferric chlorid. He accomplishes this by lavage of the stomach every other day with a 2 per cent. solution of ferric chlorid, supplemented by the administration of sodium bicarbonate in a 3 per cent. solution two or three times a day, three or four hours after meals, in amounts sufficient to neutralize the acidity of the gastric juice. He does not approve of rectal feeding, as it does not afford sufficient nourishment and as the secretion of the acid gastric juice continues. He also rejects milk and directs his patients to eat nothing but rice boiled in water with a little salt for one to two hours until it is a syrupy fluid. Later the water is replaced by milk: 50 gm. rice in a liter of milk, sweetened or salted, allowing about 200 to 300 gm. of the mixture at each meal, which, weight for weight, is as nourishing as white meat. The chief symptoms vanish in eight or ten days and a mixed diet can be allowed five days later, the sodium bicarbonate being continued.

Surgery of the Sympathetic for Neuralgia. J. TERMIER.—This is a recent Lyons thesis, inspired by Jaboulay, which reports the favorable results obtained in a number of cases of severe pelvic neuralgia, sciatica, etc., by resection of the sympathetic at various points. The operation most frequently practised was "décollement" or detachment of the rectum, which ruptures the sympathetic fibers connecting with the sciatic nerve. It was successful in curing several cases of neuralgia of this nerve and of different vasomotor disturbances of the lower members; also in a case of ataxia, in which the lightning pains were permanently abolished by it. Termier attributes the primal cause of a number of neuralgias to the ganglionary system and suggests discission of the peri-aortic fibers of the solar plexus in abdominal neuralgia and other affections possibly dependent on the abdominal sympathetic. He reports a number of cases of facial neuralgia cured or very much improved by resection of the cervical sympathetic.

Revue de Chirurgie (Paris), December.

Exclusion of the Intestine. F. TERRIER AND A. GOSSET.—In this portion of the article, concluded from the August and November numbers, fifty-two cases of exclusion of the intestine are reviewed or described at length, with forty-four recoveries. Total occlusion of the excluded loop seems to be unanimously rejected now and exclusion with partial occlusion of the excluded loop is given the preference in cases of stercoral fistula or tuberculosis of the intestines. It is still a question whether in case of cancer which it is impossible to extirpate, unilateral exclusion is the best method of procedure, also whether the reflux of intestinal contents into the excluded portion is really to be feared.

Special Process for the Radical Cure of Inguinal Hernia. A. LE DENTU.—The method described by Le Dentu has been thoroughly tested by him during the last ten years and was the first of the "fold-operations," the second being Ricard's fold taken in the fibrous capsule of the shoulder-joint in case of recurring luxation and the third Le Dentu's application of the process to the knee. The simplicity and facility of the operation are great advantages, and also the fact that it is easier to secure the adhesion of broad flat surfaces than of narrow edges. The essence of the process is the loosening of the abdominal wall by inserting the finger beneath the external oblique and its aponeurosis after the hernia has been reduced and the sac taken care of. The abdominal wall is stretched by the forefinger until it forms a recess above the spermatic cord like the finger of a glove. A row of U-shaped stitches are then taken perpendicular to the axis of the fold thus raised, and when tied they reconstitute the wall with a double fold of muscle and aponeurosis. In case of extensive adhesions it may be necessary to split the fold down the center, otherwise proceeding as above. He uses catgut or silk, but observes that removable sutures of wire, if preferred, would probably answer the purpose equally well. He does not cite any cases, merely remarking that his results will bear comparison with those of other methods.

Cancer of the Large Intestine, Rectum Excepted. R. DE BOVIS.—This comprehensive study is concluded from five preceding numbers with a detailed description of nineteen unpublished cases and a number reported in Russian, Scandinavian and Dutch journals. In the first of the three personal cases there was a history of chronic constipation for two years, but no obstruction, diarrhea, nor blood nor pus in the discharges. When the patient, a woman of 57, entered the hospital, there had been obstruction for five days and vomiting, not fecal in character. The patient was much emaciated and there were considerable distension of the abdomen and tenderness in the right iliac fossa, which seemed a little fuller and less resonant than other portions of the abdomen. The intestine was retained outside of the abdominal cavity by a glass rod passed beneath it. The patient died, apparently from autointoxication. A small flat piece of bone had lodged on the stricture, which proved to be a small ring cancer of the sigmoid flexure. In another case, a robust man of 66, of good

personal and family history, had symptoms of obstruction for eight days without vomiting. The abdomen was distended, particularly on the left side, but nothing morbid could be discovered before operating. The patient died from the results of an abdominal stercoral phlegmon, and on autopsy a small ring cancer, a scirrhus, was found as in the first case, at the sigmoid flexure. The distended loop had been held merely by a strip of gauze, which had allowed it to subside, thus favoring the production of the phlegmon. In a third case the patient regained comparative health after an artificial anus had been made in the sigmoid flexure. The evidence, however, was conclusive in regard to the existence of a lesion similar to the others—a cylindrical epithelioma—although the anatomic proof was lacking.

Semaine Medicale (Paris), December 19.

The Heart in Chlorosis. E. BARIE.—The palpitations, pain in the precordial region and false angina pectoris noted in neuro-arthritic or dyspeptic patients are merely functional disturbances common in chlorosis. The cardiac thrombosis and dilatation of the heart occasionally noted are more serious. In five cases recently observed by Barié the heart was unusually small. Hypertrophy has been noted by many clinicians, and also a false hypertrophy due to the displacement of the diaphragm, which pushes back the heart, as can be differentiated by fluoroscopy. When actual dilatation exists it is probably due to atony of the myocardium from defective nutrition, the adulterated blood not supplying the necessary elements, although Wybauw suggests that it is due to a general infiltration of the tissues by the diffused serum of the blood. He points out that the quantity of the urine increases, while the weight diminishes, when recovery commences. Virchow has suggested that the dilatation may be secondary to a specially narrow aorta, but in this case the lesion would persist. One of the features of chlorotic dilatation is its transient character. In case of dyspepsia the gastric disturbances are liable to cause a reflex action which is transmitted by the great sympathetic to the capillaries of the lungs and incites them to spasmodic contraction. This raises the blood-pressure in the pulmonary artery and hence the right ventricle dilates, sometimes to such an extent that functional tricuspid insufficiency is the result. This, in turn, is liable to produce a souffle at the apex, spreading distinctly toward the left axilla, strictly systolic and not modified by the position of the patient. On the other hand, if the souffle is weak, if it is above, either to the right or left of the apex, if it does not spread, if it occurs in mesosystole, and especially if it alters as the subject stands or reclines, it is a cardiopulmonary souffle—a sound occurring in the lung—rendered rhythmical by the movements of the heart.

Surgical Prothesis With Injections of Paraffin Into the Tissues. R. GERSUNY.—The first time this method was tried was on a man who was seriously depressed from the mutilation following an operation for tubercular orchi-epididymitis. Gersuny injected 8 c.c. of sterilized "white vaselin"—which is a mixture of solid and liquid paraffin, melting at 40 C.—into the left half of the scrotum and a fortnight later about the same amount into the right half. A fortnight later 3 c.c. were injected into the left half and 2 c.c. into the right. The result was extremely satisfactory. The scrotum presents the normal aspect as when contracted by cold, and on palpation the two round bodies on each side, of a hard consistency, simulate to perfection the missing testicles. This success encouraged him to inject paraffin into the uvula and velum of the palate in two persons who had been operated on for hare-lip, but were unable to articulate the syllable "ga." The parts were increased in size by the paraffin until the disturbance completely disappeared. In a case of incontinence of urine after an operation for a vesico-vaginal fistula, the function of the sphincter was restored by injecting a ring of paraffin around it. The paraffin does not change nor become absorbed and thus forms a permanent subcutaneous prothesis. He suggests that it may prove useful in raising sunken cicatrices, in correcting deformities after ablation of subjacent bone—the superior maxillary, for instance—and to supply a base to flattened noses and breasts. It may even prevent ankylosis if injected between the surfaces of the bones in operations on the joints, and can be removed later when a fibrous capsule has formed. Perivascular injections may arrest venous stasis and thus prevent varices, and hernia might also be controlled by appropriate use of paraffin in this way.

Centralblatt f. Chirurgie (Leipsic), December 22.

Sterilization of Sponges Without Injury. C. A. ELSBERG.—Applying to sponges the principles of his method of sterilizing catgut without injury, Elsberg states that they can be boiled for hours without losing any of their porosity, elasticity, softness or diminishing in size. He first cleanses them by soaking for twenty-four hours in an 8 per cent. solution of hydrochloric acid, which is afterward thoroughly washed out. They are next boiled for five to ten minutes in a solution of ten parts caustic potash and twenty parts tannic acid in a thousand parts water. They are then rinsed in sterile water or a solution of carbolic acid or sublimate until all traces of the brown potash solution have vanished, after which they are kept in a 2 to 5 per cent. solution of carbolic acid until needed. Large sponges infected with staphylococci, streptococci, anthrax and other bacilli and spores were always found sterile after boiling for even less than five minutes, in the potash and tannin solution, while they will bear repeated boiling without injury if the directions are followed.

Muenchener Med. Wochenschrift, December 4 and 25.

Advantage of the Curved Sound in Cases of Tumors of the Esophagus. H. STARCK.—The diverticulum sound has been found extremely useful at Erb's clinic in case of tumors of the esophagus. It penetrates where it is impossible to insert a straight sound. By turning it around, the tip constantly explores the periphery and finally locates the constriction and finds a passageway. An ordinary Nélaton catheter with a wire guide is curved at an angle of 180 degrees about 1.5 to 3 cm. from the tip. When this pathfinder has located the passage, larger sizes can be used and the lumen stretched until natural feeding can be instituted in some cases, or if not, a sound can be introduced for artificial feeding.

Significance of Alcohol in Disinfection of the Hands. E. BRAATZ.—The presence of air in the pores of the skin impedes the entrance of disinfecting fluids. Alcohol decomposes air ten times more rapidly than water, and hence allows the penetration of the fluids into the depths of the pores and crevices.

Success of Atropin in Intestinal Disturbances. P. OSTERMAIER.—Several writers have lately called attention to the advantages of subcutaneous injection of atropin in ileus and other intestinal disturbances. Ostermaier details several convincing observations, the result of a large experience with this remedy in cases of secondary reflex spasm or paresis of the intestines after calculus colic, lumbago, traumatism, etc., also in a few cases of appendicitis. He injects 1 mg. sometimes in two doses. The subjective disturbances rapidly disappear and in twelve to thirty-six hours a normal evacuation follows. Batsch reports one instance in which he injected 12 mg. in a few days in a case of intestinal perforation after difficult delivery. Boeck states that a fatal termination is rare even after taking 5 cg.

December 25.

Suprarenal Tablets in Addison's Disease. P. EDEL.—The first symptom of the disease was a sensation as if the region between the shoulder-blades was being pressed down and forward. Progressively increasing weakness was noted and the patient, a locksmith, hitherto healthy, was unable to work even for an hour a day. No remission had been observed at any time when the patient was first seen, six months after the first manifestations of the disease. In two or three days after the organotherapy had been instituted improvement was marked and in fourteen days the patient resumed his occupation. The pigmented patches also faded to their normal color and only traces of them around the eyes were still visible by the end of five weeks. The patient's manner of life was not altered in any way from usual during treatment. The autopsy, after a brief, intercurrent fatal tubercular meningitis, dis-

closed indications of quite general tubercular glandular lesions, including a nodule in the right suprarenal the size of a bean. The solar plexus and semilunar ganglion were imbedded in fibrous connective tissue.

Tubercular Peritonitis. R. OEHLER.—It was possible to follow to date 39 out of the 44 patients with tubercular peritonitis treated at the Frankfurt clinic during the last five years. The participation of the umbilicus is the most reliable sign of the affection, in addition to the evidences of persisting ascites and cachexia. Out of the 39, 18 have died and 21 are alive and well to-day. It chiefly affects children, and death ensues in about half the cases, generally from meningitis, but otherwise from exhaustion and general debility, in the course of six to twenty-four months. In a large number of cases—51 per cent.—spontaneous recovery occurred in the course of one to two years.

Wiener Klin. Wochenschrift, December 20.

Difference Between Natural and Artificial Feeding of Infants. T. ESCHERICH.—Is it possible, Escherich queries, that mother's milk contains some unknown substance which stimulates metabolism? This assumption would explain the inconsistencies observed and the results of natural feeding which in some cases indicate an almost specific reaction of the infantile organism to the mother's milk. The presence of such a ferment in mother's milk would include the child in the mother's metabolism somewhat in the same way as during placental circulation. It renders futile all our present efforts to approximate mother's milk in artificial feeding, but opens a path for future research which may yet lead to important results.

Tidsskrift f. d. Norske Laegef. (Christiania), December 15.

Retention of Urine from Retroversion of Uterus. E. MO.—A woman of 45, ii-para, found micturition becoming painful and finally complete retention followed. The uterus was found in retrodisplacement and the urinary troubles ceased as soon as the organ was straightened.

Brazil-Medico (Rio de Janeiro), October 22.

Sero-Diagnosis of Yellow Fever. E. MEIRELLES.—This writer accepts the bacillus icteroides as the causal agent of yellow fever, and states that while it is very difficult to obtain the sero-reaction during the first stage of the disease, it can be obtained under certain conditions in the second stage and to perfection in the third stage, during convalescence and for a considerable time afterward. Dried blood serves as well as fresh, and old cultures are better than fresh. In a large number of patients with other infections it was impossible to obtain this specific sero-reaction for yellow fever. The prognosis may be based on the reaction to a certain extent, as the earlier it appears the milder the course of the disease in all his numerous tests.

Gazeta Med. Da Bahia, September, October and November.

Sodium Hyposulphite and Serum in the Plague. J. PENNA.—Seventy-two patients were in Penna's care during the latest outbreak of the plague in Brazil, and he was much impressed not only with the benefits of serotherapy, but also of the subcutaneous injection of sodium hyposulphite in the vicinity of the bubo. His supply of serum was scanty and he was unable to administer the sufficient dose in many instances, but even with these drawbacks the mortality was only 19.3 per cent. among 36 patients treated with serum, excluding the moribund cases. The general mortality of the epidemic outside of the hospital was 50 per cent. He had found that a dog will bear the intravenous injection of 7 gm. of sodium hyposulphite in a 5 per cent. solution with no appreciable disturbance nor modification of the urine or corpuscles. He therefore ventured to administer it to man, injecting 1 gm. every three hours. Four died out of 20 patients thus treated, or 20 per cent., including one patient after thirty-one days of extensive gangrene of one of the buboes. The treatment was commenced from the first to the twelfth day of the disease in the fatal cases, death occurring the second, third, fourth and seventh day thereafter. The fever lasted an average of twelve days in the serum-treated patients, seventeen days in the 16 patients treated symptomatically and sixteen days in those treated with hyposulphite. The complete records of the cases of each group are tabulated, showing all the symptoms.

St. Petersburg Med. Woch., December 15.

Metastatic Choroiditis After Pneumonia. GERMANN.—During convalescence from a typical croupous pneumonia a purulent mestastatic irido-choroiditis appeared, with symptoms of meningitis and death in six days. Another fatal case is described in which croupous pneumonia was followed by endocarditis, embolic retinitis and panophthalmitis. Pure cultures of the diplococcus were derived from the anterior chamber. The only similar case described at length in literature was reported in 1892 by Herrnheiser, metastatic panophthalmitis with diplococci in the choroid, consecutive to croupous pneumonia, but Blessig, Eversbusch and Natanson have each observed a case of metastatic irido-choroiditis consecutive to influenza.

Vratch (St. Petersburg), December 15.

Mutual Relations Between the Bubonic Plague and Other Varieties of Hemorrhagic Septicemia. S. V. KONSTANSOFF.—The writer's experimental research with hundreds of mice has established that preliminary active and passive immunization against hen cholera and swine plague due to the bacillus pestifer and bacillus suis, has no influence on the course of bubonic-plague infection. In the same way passive immunization against the bubonic plague does not affect the course of the infection from the above-mentioned coccobacilli. The absence of reciprocity between the immunization against bubonic plague and against the other varieties of hemorrhagic septicemia, indicates that the former has a special place apart in this group. He found antiplague serum a valuable differentiating means for the confirmation of bubonic plague. He also noted a marked contrast between even closely related forms of hemorrhagic septicemic infection in the faculty of resistance to a temperature of 45 C.

Books Received.

Acknowledgment of all books received will be made in this column, and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

AMERICAN TEXT-BOOK OF PHYSIOLOGY. By Henry P. Bowditch, M.D.; John G. Curtis, M.D.; Henry H. Donaldson, Ph.D.; W. H. Howell, Ph.D., M.D.; Frederic S. Lee, Ph.D.; Warren P. Lombard, M.D.; Graham Lusk, Ph.D., F.R.S. (Edin.); W. T. Porter, M.D.; Edward T. Reichert, M.D.; Henry Sewall, Ph.D., M.D. Edited by William H. Howell, Ph.D., M.D., Professor of Physiology in the Johns Hopkins University, Baltimore, Md. Second Edition, Revised. Vol. XI. Muscle and Nerve; Central Nervous System; Special Senses; Special Muscular Mechanisms; Reproduction. Cloth. Pp. 551. Price, $3.50. Philadelphia and London: W. B. Saunders & Co. 1901.

A HANDBOOK OF GENITO-URINARY SURGERY AND VENEREAL DISEASES. By G. M. Phillips, M.D., Professor of Genito-Urinary Surgery and Venereal Diseases, Barnes Medical College. Illustrated by Half-tone Cuts and Special Drawings by L. Crusius, M.D., Cloth. Pp. 313. Price, $2.00. St. Louis, Mo.: Lewis S. Matthews & Co. 1900.

PROCEEDINGS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION at the Forty-eighth Annual Meeting, held at Richmond, Va., May, 1900. Also the Constitution, By-laws and Roll of Members. Cloth. Pp. 968. Baltimore, Md.: Published by the American Pharmaceutical Association. 1900.

THIRTY-SECOND ANNUAL REPORT OF THE SECRETARY OF STATE ON THE REGISTRATION OF BIRTHS AND DEATHS, MARRIAGES AND DIVORCES IN MICHIGAN, for the Year 1898. Justus S. Stearns, Secretary of State. Edited by Cressy L. Wilbur, M.D., Chief of Division of Vital Statistics. By Authority. Cloth. Pp. 155. Lansing, Mich.: Robert Smith Printing Co. 1900.

STATE MEDICINE AND SANITATION. The Relation of the Illinois State Medical Society to Sanitation and the Regulation of the Practice of Medicine in the State. By A. C. Corr, A.M., M.D. Carlinville, Ill. Paper. Pp. 40. Carlinville, Ill.: Macoupin Printing Co. 1900.

TRANSACTIONS OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA. (The State Board of Health.) Organized 1847—Meeting of 1900. Montgomery, April, 17-20. Cloth. Pp. 564. Montgomery, Ala.: Brown Printing Co. 1900.

PROCEEDINGS OF THE FIFTEENTH ANNUAL MEETING OF THE CONFERENCE OF STATE AND PROVINCIAL BOARDS OF HEALTH OF NORTH AMERICA. Atlantic City, June 1 and 2, 1900. Paper. Pp. 118. Providence: Snow & Farnham. 1900.

PROCEEDINGS OF THE PHILADELPHIA COUNTY MEDICAL SOCIETY. October, November. Paper. Philadelphia: Published by the Society.

REPORT OF THE SURGEON-GENERAL OF THE ARMY to the Secretary of War for the Fiscal Year Ended June 30, 1900. Paper. Pp. 411. Washington: Government Printing Office. 1900.

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THIRTY-FIRST ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF MASSACHUSETTS. Cloth. Pp. 812. Boston: Wright & Potter Printing Co. 1900.

TRANSACTIONS OF THE MICHIGAN STATE MEDICAL SOCIETY for the Year 1900. Volume XXIV. Cloth. Pp. 552. Detroit, Mich.: Published by the Society. 1900.

THE PRESENT POSITION OF THE TREATMENT OF SIMPLE FRACTURES OF THE LIMBS. An Address Delivered in Opening a Discussion at the Meeting of the British Medical Association held at Ipswich, August, 1900. By William H. Bennett, F.R.C.S., Senior Surgeon to St. George's Hospital. To Which Is Appended a Summary of the Opinions and Practice of about 300 Surgeons. Reprinted, after revision, from the British Medical Journal, Oct. 7, 1900. Cloth. Pp. 41. Price, $0.80. New York and Bombay: Longmans, Green & Co. 1900.

ON THE USE OF MASSAGE AND EARLY PASSIVE MOVEMENTS IN RECENT FRACTURES and other Common Surgical Injuries and the Treatment of Internal Derangement of the Knee-Joint. Three Clinical Lectures Delivered at St. George's Hospital. By William H. Bennett, F.R.C.S., Senior Surgeon to the St. George's Hospital Reprinted, after revision, from The Lancet. With 12 Illustrations. Cloth. Pp. 97. Price, $1.40. New York and Bombay: Longmans, Green & Co. 1900.

REFRACTION AND HOW TO REFRACT, Including Sections on Optics, Retinoscopy, the Fitting of Spectacles and Eye-Glasses, etc. By James Thorington, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine. Second Edition. With 200 Illustrations, 13 of Which Are Colored. Cloth. Pp. 301. Price, $1.50. Philadelphia: P. Blakiston's Son & Co. 1900.

KING'S AMERICAN DISPENSATORY. By Harvey Wickes Felter, M.D., Adjunct Professor of Chemistry, Pharmacy and Toxicology, and Professor of Anatomy in the Eclectic Medical Institute, Cincinnati, Ohio, and John Uri Lloyd, Phr.M., Ph.D., Professor of Chemistry, Pharmacy and Toxicology in the Eclectic Medical Institute, Cincinnati, Ohio. Entirely Rewritten and Enlarged. Eighteenth edition. Third Revision. In two volumes. Vol. II. Cloth. Pp. 284. Price, $4.50 per volume. Cincinnati, Ohio: Ohio Valley Company. 1900.

A MANUAL OF SURGICAL TREATMENT. By W. Watson Cheyne, M.B., F.R.C.S., and F.R.S., Professor of Surgery in King's College, London; and F. F. Burghard, M.D., M.S. (Lond.), F.R.C.S., Teacher of Practical Surgery in King's College, London. In seven volumes. Vol. IV. The Treatment of the Surgical Affections of the Joints (Including Excisions); and the Spine. Cloth. Pp. 370. Price, $3.75 net. Philadelphia and New York: Lea Brothers & Co. 1901.

TEXT-BOOK OF HISTOLOGY, Including the Microscopic Technic. By Dr. Philip Stöhr, Professor of Anatomy at the University of Würzburg. Third American, from Eighth German Edition. Translated by Dr. Emma L. Bilstein, Formerly Director of the Laboratories of Histology and Embryology, Woman's Medical College of Pennsylvania. Edited with Additions by Dr. Alfred Schaper, Professor of Anatomy, University of Breslau. With 301 Illustrations. Cloth. Pp. 432. Price, $3.00. Philadelphia: P. Blakiston's Son & Co. 1900.

EXPERIMENTAL RESEARCH INTO THE SURGERY OF THE RESPIRATORY SYSTEM. An Essay Awarded the Nicholas Senn Prize by the AMERICAN MEDICAL ASSOCIATION for 1898. By George W. Crile, A.M., M.D., Ph.D., Professor of Clinical Surgery, Medical Department, Western Reserve University. Second Edition. Cloth. Pp. 114. Price, $2.50. Philadelphia: J. B. Lippincott Co. 1900.

A GUIDE TO THE INSTRUMENTS AND APPLIANCES REQUIRED IN VARIOUS OPERATIONS. By A. W. Mayo Robson, F.R.C.S., Senior Surgeon to the Leeds General Infirmary. Second Edition. Cloth. Pp. 62. Price, 2 s. 6 d. London, Paris, New York and Melbourne: Cassell & Co., Ltd. 1900.

THE ESSENTIALS OF PRACTICAL BACTERIOLOGY. An Elementary Laboratory Book for Students and Practitioners. By H. H. Curtis, B.S., M.D. (Lond.), F.R.C.S., Late Surgeon Registrar, University College Hospital. Cloth. Pp. 291. Price, $2.50. New York and Bombay: Longmans, Green & Co. 1900.

COMPARATIVE PHYSIOLOGY OF THE BRAIN AND COMPARATIVE PSYCHOLOGY. By Jacques Loeb, M.D., Professor of Physiology in the University of Chicago. Illustrated. Cloth. Pp. 309. Price, $1.75. New York: G. P. Putnam's Sons. London: John Murray. 1900.

TRANSACTIONS OF THE NEW HAMPSHIRE MEDICAL SOCIETY, at the One Hundred and Ninth Anniversary, held at Concord, May 31 and June 1, 1900. Cloth, Pp. 333. Concord, N. H.: Ira C. Evans. 1900.

MEDICAL AND SURGICAL REPORTS OF THE BOSTON CITY HOSPITAL. Eleventh Series. Edited by Herbert L. Burrell, M.D., W. T. Councilman, M.D., and Charles F. Withington, M.D. Pasteboard. Pp. 254. Boston: Published by the Trustees. 1900.

Change of Address.

F. P. Boyd, Chicago, to Lewiston, Minn.
W. W. Brown, Hebron, Ill., to Genoa Junction, Wis.
R. H. Burrell, Boston, Mass., to 1276 Logan Ave., Denver, Colo.
W. S. Bell, Bellaire, Mich., to Utica, Ohio.
R. K. Cole, Sedalia, Mo., to 151 W. 64th St., New York City.
S. T. Carswell, Fowlstown, Ga., to Luraville, Fla.
A. Cornelius, 489 W. Van Buren St., to 430 W. Randolph St., Chicago.
D. W. Craig, 356 Webster Ave., to 93 Sigel St., Chicago.
J. J. Clausen, Rialto Bldg., to 2311 Summit St., Kansas City, Mo.
J. A. Corn, City Hospital, to City Hall, Kansas City, Mo.
M. De Tar, Kansas City, Mo., to Kinsley, Kan.
L. Freeman, California Bldg., to 1843 Franklin St., Denver, Colo.
H. A. Gant, Water Valley, to Jackson, Miss.
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H. M. Martin, 607 Van Buren St., to 274 Ashland Boul., Chicago.
A. A. Nichols, Atlanta, to Ivy Log, Ga.
V. V. Norton, Chicago, to Waverly, Iowa.
J. C. Paine, 124, to 2725 N. Adams St., Peoria, Ill.
C. Passudetti, Chicago, to Iron Mountain, Mich.
John Stout, Pender, to 1624 S. 10th St., Omaha, Neb.
J. C. Spencer, Crocker Bldg., to 590 Sutter St., San Francisco, Cal.
W. M. Shultz, 1871 Lafayette Ave., to 823 14th St., Denver, Colo.
O. L. Suggett, Jefferson Ave. and Olive St., to Commercial Bldg., St. Louis, Mo.
M. K. Scott, 1469 Troost Ave., to University Medical College, Kansas City, Mo.
G. E. Thompson, 72 Marietta, to 1 Chamberlin St., Atlanta Ga.

New Patents.

Patents of interest to physicians, Dec. 18 and 25:

664,351. Siphon-filler and mineral water charger. John H. Fox, New York City.
664,318. Making soluble casein. Wm. A. Hall, Bellows Falls, Vt.
663,969. Massage chair. John M. Johnston and O. Vanorman, Los Angeles, Cal.
663,995. Germ-destroyer for telephone-mouthpieces. Lewis L. Lacey, Austin, Texas.
664,282. Vapor bath cabinet. George W. Merker, Belleville, Ill.
663,997. Atomizer, Roland Morrill, Benton Harbor, Mich.
663,978. Sanitary appliance. Arthur O'Brien, Helena, Mont.
664,308. Electrotherapeutic spectacles. Thomas B. Zeller, Pittsburg, Pa.
664,377. Guaiacolated serum and making same. Fernand Berlioz, Grenoble, France.
664,378. Serum preparation for medical use. Fernand Berlioz, Grenoble, France.
664,398. Abdominal support. Huldah S. Gates, Rosedale, Kan.
664,482. File for prescriptions. Harry I. Jeffers, Aberdeen, Miss.
664,495. Pessary. Horace M. Paine, Atlanta, Ga.
664,796. Rectal irrigator and insufflator. Rody E. Warner, Pittsburg, Pa.
664,516. Machine for manufacturing capsules for bottles or the like. Eduard Watzke, Friedberg, Austria-Hungary.

The Public Service.

Army Changes.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., Dec. 27, 1900, to Jan. 2, 1901, inclusive:

George W. Adair, major and surgeon, U. S. A., member of retiring board convened in Chicago.

William B. Banister, major and surgeon, Vols. (captain and asst.-surgeon, U. S. A.), member of a board convened in Manila, P. I., for the examination of candidates for admission to the medical department of the army.

Alfred E. Bradley, captain and asst.-surgeon, U. S. A., member of a retiring board at St. Paul, Minn.

William H. Brooks, acting asst.-surgeon, from Fort Schuyler, N. Y., to San Francisco, Cal., for duty with troops en route to Manila, P. I., and subsequent assignment in the Division of the Philippines.

Marshall M. Cloud, lieutenant and asst.-surgeon, U. S. A., sick leave of absence extended.

Louis W. Crampton, major and surgeon, U. S. A., member of a board convened in Manila, P. I., to examine candidates for admission into the medical department of the army.

Calvin De Witt, lieutenant-colonel, deputy surgeon-general, U. S. A., member of a retiring board at St. Paul, Minn.

Thomas W. Jackson, acting asst.-surgeon, former orders amended so as to assign him to temporary duty at the general hospital, Presidio, San Francisco, Cal.

Theodore C. Lyster, lieutenant and asst.-surgeon, U. S. A., from duty in Cuba to Fort Schuyler, N. Y.

Walter Reed, major and surgeon, U. S. A., to represent the medical department of the army at the Pan-American Medical Congress, to meet in Havana, Cuba, Feb. 5, 1901.

William E. Richards, lieutenant and asst.-surgeon, U. S. A., leave of absence on account of sickness extended.

Major A. W. Shockley, lieutenant and asst.-surgeon, U. S. A., from duty in the Department of Cuba to Fort Niobrara, Neb.

Hobert E. Warren, acting asst.-surgeon, to duty as examiner of recruits at Denver, Colo.

Clark I. Wertenbaker, acting asst.-surgeon, from Fort Niobrara, Neb., to San Francisco, Cal., for duty with troops going to Manila, P. I., and subsequent assignment in the Division of the Philippines.

J. Samuel White, acting asst.-surgeon, former orders amended to direct him to report to the commanding general Department of California for duty at the general hospital, Presidio, of San Francisco, Cal.

In addition to the above orders, the following was issued Jan. 2, 1901: The following named acting asst.-surgeons, U. S. A., will proceed from the places hereinafter designated to San Francisco, Cal., and report in person to the commanding general, Department of California, for assignment to duty with troops en route to the Philippine Islands, where, upon arrival, they will report in person to the commanding general, Division of the Philippines, for assignment to duty:

John H. Allen, from Washington, D. C.; Henry D. Brown, from Denver, Colo.; William F. Graham, from Summerville, S. C.; Lawrence McEvoy, from St. Louis, Mo.; Frederick H. Mills, from Buffalo, N. Y.; Joseph Pettyjohn, from Augusta, Ga.; Richard J. Price, from Wilmington, N. C.; Joseph W. Reddy, from Boston, Mass.; Shannon Richmond, from St. Joseph, Mo.; Anton R. Schier, from Burlington, Iowa; Alfred T. Short, from Montrose, Colo.; Robert S. Spilman, from Washington, D. C.; Theodore H. Weisenburg, from Philadelphia, Pa.

Navy Changes.

Changes in the Medical Corps of the Navy for the week ending Jan. 5, 1901:

Surgeon R. P. Crandall, detached from the U. S. T. S. *Constellation*, upon reporting of relief, ordered to temporary duty in connection with recruiting at Milwaukee, Wis., and then home to wait orders.

Surgeon W. A. McClurg, detached from the *Indiana*, and to naval training station, Newport, R. I., as the relief of Surgeon R. P. Crandall.

Asst.-Surgeon J. M. Brister, ordered to the *Independence*, Jan. 13, 1901.

Marine-Hospital Changes.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the U. S. Marine-Hospital Service for the seven days ended Jan. 3, 1901:

Surgeon George Purviance, relieved from duty at Baltimore, Md., and directed to proceed to Washington, D. C., reporting at the bureau for duty.

P. A. Surgeon C. P. Wertenbaker, to proceed to Shreveport, La., for special temporary duty.

P. A. Surgeon W. G. Stimpson, to proceed to Denver, Colo., for special temporary duty.

P. A. Surgeon B. W. Brown, relieved from duty at Cape Charles quarantine and directed to proceed to Baltimore, Md., and assume command of the service, relieving Surgeon George Purviance.

Asst.-Surgeon C. W. Wille, to assume temporary command of Cape Charles quarantine, relieving P. A. Surgeon R. W. Brown.

Asst.-Surgeon J. W. Amesse, on being relieved by Asst.-Surgeon L. P. H. Bahrenburg, directed to proceed to Manila, P. I., and report to chief quarantine officer for duty.

Asst.-Surgeon B. J. Lloyd, granted leave of absence for 18 days from Dec. 11, 1900.

Asst.-Surgeon L. P. H. Bahrenburg, Bureau order of Dec. 27, 1900, directing Asst.-Surgeon Bahrenburg to proceed to Manila, revoked, and directed to proceed to Honolulu, H. I., reporting to the chief quarantine officer for duty.

Acting Asst.-Surgeon J. E. Bready, granted leave of absence for 4 days from Jan. 2, 1901.

Hospital Steward W. W. Kolb, granted leave of absence for 30 days from Jan. 29, 1901.

Hospital Steward E. T. Olsen, granted leave of absence for 5 days.

CASUALTY.

Acting Asst.-Surgeon A. R. Booth, died at Shreveport, La., Dec. 27, 1900.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, U. S. Marine-Hospital Service, during the week ended Jan. 4, 1901:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, Dec. 15-22, 1 case.
Florida: Jacksonville, Dec. 15-22, 1 case.
Illinois: Cairo, Dec. 15-22, 3 cases; Chicago, Dec. 22-29, 2 cases.
Kansas: Wichita, Dec. 22-29, 2 cases, 1 death.
Nebraska: Decatur, April 1-Dec. 14, 416 cases, 4 deaths.
New Hampshire: Manchester, Dec. 22-29, 14 cases.
New York: New York, Dec. 22-29, 11 cases, 2 deaths.
Ohio: Ashtabula, Dec. 22-29, 5 cases; Cleveland, Dec. 22-29, 20 cases.
Rhode Island: Central Falls, Dec. 26, 1 case.
Tennessee: Memphis, Dec. 22-29, 2 cases; Nashville, Dec. 22-29, 1 case.
Texas: Galveston, Dec. 17, 6 cases; Houston, Dec. 22-29, 25 cases, 1 death.
Utah: Salt Lake City, Dec. 22-29, 52 cases.
West Virginia: Wheeling, Dec. 15-22, 3 cases.
Wisconsin: Green Bay, Dec. 23-30, 1 case.

SMALLPOX—FOREIGN.

Argentina: Buenos Ayres, Oct. 1-30, 22 cases, 14 deaths.
Austria: Prague, Dec. 1-8, 26 cases.
Egypt: Alexandria, Nov. 26-Dec. 10, 4 cases, 4 deaths.
England: London, Dec. 1-15, 2 cases.
France: Paris, Nov. 24-Dec. 1, 103 cases, 17 deaths; Dec. 1-8, 152 cases, 14 deaths.
Greece: Athens, Dec. 1-8, 1 case.
India: Bombay, Nov. 21-27, 1 death; Calcutta, Nov. 17-24, 8 deaths; Madras, Nov. 17-23, 1 death.
Italy: Licata, Dec. 8-15, 1 death.
Mexico: Vera Cruz, Dec. 15-22, 1 death.
Russia: Moscow, Nov. 24-Dec. 1, 3 cases, 1 death; Odessa, Dec. 1-8, 23 cases, 7 deaths; St. Petersburg, Dec. 1-8, 5 cases, 3 deaths; Warsaw, Dec. 1-8, 15 deaths.
Scotland: Glasgow, Dec. 15-21, 67 cases, 3 deaths.

YELLOW FEVER.

Cuba: Havana, Dec. 8-22, 6 deaths.
Mexico: Vera Cruz, Dec. 15-22, 1 death.

CHOLERA.

India: Bombay, Nov. 21-27, 2 deaths; Calcutta, Nov. 17-24, 35 deaths; Madras, Nov. 17-23, 1 death.

PLAGUE.

India: Bombay, Nov. 21-27, 58 deaths; Calcutta, Nov. 18-24, 4 deaths.
Japan: Osaka, Nov. 30-Dec. 4, 4 cases.
Madagascar: Tamatave, Oct. 29-Nov. 18, 1 case.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

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FISCAL YEAR.

The fiscal year of the AMERICAN MEDICAL ASSOCIATION is from January 1 to December 31: and the annual dues paid by a new member cover only the fiscal year, no matter at what time of year the membership is obtained. Those who pay their dues and join the ASSOCIATION at the annual meeting in June, for instance, pay only for the fiscal year which ends with the December following, and the annual dues for the following fiscal year are payable the succeeding January, at which time the treasurer sends a statement to each member. Such members, however, are entitled to THE JOURNAL for the full year, even though the membership be not continued.

PAPERS READ AT THE ANNUAL MEETING.

"Every paper received by this ASSOCIATION and ordered to be published, and all plates or other means of illustration, shall be considered the exclusive property of the ASSOCIATION. . . The Board of Trustees shall have full discretionary power to omit from the published transactions, in part or in whole, any paper that may be referred to it by the ASSOCIATION or either of the Sections, unless specially instructed to the contrary by vote of the ASSOCIATION." (From Article V of the By-laws.)

NEWS.

Our readers are requested to send us items of news of a medical nature, also marked copies of local newspapers containing matters of interest to members of the medical profession. We shall be glad to know the name of the sender in every instance.

ORIGINAL PAPERS.

Articles are accepted for publication with the understanding that they are contributed solely to this Journal.

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CHANGE OF ADDRESS.

In ordering a change of address it is important that both the old and new addresses be given.

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